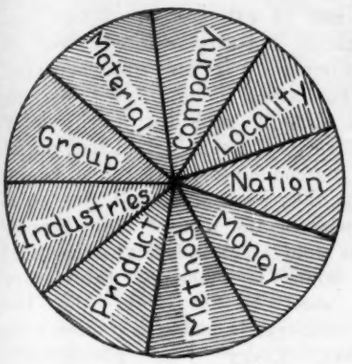
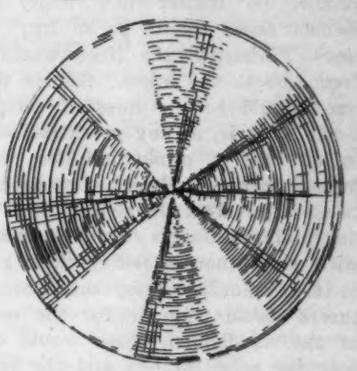
How Kaleidoscopic Competition Is Putting Steel Industry to a Test



Industry against industry, producer against retailer—these are a few of the segments in "kaleidoscopic competition."

By O. H. Cheney



Speeding up the vari-colored wheel of business has resulted in a blur "with many double-jointed ethics."

COMPETITION has existed as long as there has been business, longer, perhaps. Some kind of business and industry has existed for many ages, ever since the cavemen traded a mastodon steak for a new club. But wouldn't you call the tremendous industry and business of today new compared with the production and distribution problems of the cavemen? I think you might with all justification call the business of today the new business as compared with the business of 100 years ago, even 25 years ago. And with equal justice we can call the competition of today the new competition as compared with that of 25 years ago. I would go further, and say five years ago, and I would even say that competition of today is new compared with the competition of yesterday.

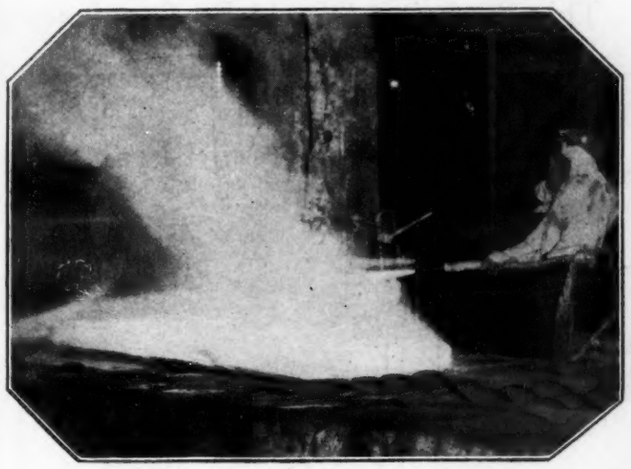
That is one of the significant, I might say terrifying, aspects of the new competition. It moves so fast. It is as relentless as time itself. It has no mercy, like time, and, like time, it has a grim, sardonic sense of humor. While we are laughing at the way it works, we suddenly discover that the joke is on us.

No business man knows who his competitors are, no business man can see his competitors, whether it is the blind man who sells chewing gum on the street corner or Judge Gary of the United States Steel Corp. Big business is just as much in the dark as little business. Like time, and death, the new competition is democratic. It favors neither the great nor the small.

* * *

I should like to draw a picture of the old competition and another of the new competition and compare them. The old competition could be pictured in the form of two sets of lines, some up and down and some across, at right angles. The vertical lines would represent the process of distribution, beginning with the raw material producer and

From an address by the author, vice president, American Exchange Irving Trust Co., New York, before the Boston chamber of commerce, Dec. 30.



WHICH WINS THE CONTRACT, STEEL MILL OR FABRICATOR?

"In the steel industry the mills are competing with their own customers, the fabricators, and selling direct to builders," says the author. "Is it fair to compete with one's own customers?"

going through the manufacturer, the wholesaler and jobber to the retailer and thus to the consumer. These vertical lines would be simple, no matter how many middlemen there might be in any particular industry, the lines would go from one to the other. Across these lines would be the lines of competition. That is, at any particular stage in the line of production and distribution, there would be competition between equivalent elements. The raw material producers would compete with each other in selling their goods to the manufacturers, the manufacturers would compete for the orders of the middlemen, these would compete for retail outlets and the retailers would compete for the trade of the consumer.

There you have a picture of the old competition as simple as the diagram of a children's game. But the picture of the new competition is more like modern art. At first glance it is just a jumble of lines in all directions.

Instead of going from point to point, from the producers, through the distributors to the consumer, the line of the new distribution takes sudden jumps and cuts corners and tries to leave out as many points as possible. Or else, in other industries, they become more complicated with new kinds of middlemen. And the lines of the new competition, instead of running across the line of distribution, begin to jump up and down along the line of distribution, that is, we find manufacturers and middlemen and retailers competing with each other. And, worst of all, the pictures of all the industries are drawn on top of each other and there is not only competition within the industries but also between them.

Wherever you turn, whatever industry you study, you will find the new competition. What you find in cotton you will find in steel, the greatest industry in the country. We have come to think of steel as impregnable, the very basis of our modern civilization, which is the age of steel. It has become one of the fundamental factors in our economic life, its fluctuations are the barometer of business. Like cotton, the steel industry became great because it couldn't help it, it never worried about the future, and the people who wanted to use steel had to ask for it. When the automobile industry wanted steel it had to make up its own specifications. The hot steel industry, the branch which actually rolls the steel, never has advertised itself. Steel has never been merchandized. Steel had to be bought, like cotton, it was not sold. And what is the result? One branch of the cold steel industry, structural steel which is made by fabricators from steel bought from the hot steel industry, is losing a million tons a year. Every year $100,000,000 worth of business is going to concrete. Why? The cement industry is young, yet it was organized 20 years before the structural steel fabricating industry. The cement industry has built up one of the greatest co-operative business development organizations this country has ever seen. It has among its 525 employes 350 engineers, 290 of whom constantly cover the country urging the use of concrete and showing the best ways to use it in every possible structure, from a bird fountain to a skyscraper. The structural steel industry now has organized to combat these huge losses by explaining why steel should be used, and how.

There you have the new competition, inter-commodity competition, on a titanic scale. But it is exactly the same type of competition as between many industries such as the automobile, bus and truck and the railroad and trolley.

This is a good example of how intricate inter-commodity competition can become. A railroad goes to a public utility commission to ask that

Steel Sponsors

WITH an original membership of 50 fabricating plants, the American Institute of Steel Construction now represents 218 plants engaged in the fabrication and erection of structural steel in the United States and Canada. This membership produces over 99 per cent of the total output of structural steel in the two countries, excluding the production of the plants controlled by the rolling mills. The industry transacts a business of approximately $300,000,000 a year. The activities of the institute are financed by an assessment paid by each member upon the basis of his tonnage output, and by contributions received from the Bethlehem Steel Co., the Jones & Laughlin Steel Corp., the Inland Steel Co., and the Scullin Steel Co. The United States Steel Corp. and its many subsidiaries, including the American Bridge Co., are co-operating with the institute in the furtherance of its educational work. As yet, however, no financial assistance has been extended.—From an address by Charles F. Abbott, executive director, American Institute of Steel Construction, on "Progress of Building Industry Demands Elimination of Waste."

This Situation Would Be Comical—

WANTED
BIDS WILL BE RECIEVED ON 10 STORY BUILDING
FABRICATOR
HOW MUCH CAN WE GET THE STEEL FOR IF WE LAND THE JOB
200¢
D.E.F. STEEL CO.
THIS BID OUGHT TO TAKE THE JOB
A.B.C. STRUCTURAL COMPANY

motor buses which are competing with it be regulated for the public good. The same railroad, however, in another state, is operating its own bus system and undertakes, with equal sincerity, to prove that in the second state it would be against the public welfare to regulate buses. Another example, the United States Steel Corp., the greatest corporation in the country, and the one most affected by concrete competition, owns the Universal Portland Cement Co. which contributes, I understand, a substantial part of the Portland Cement association's fund.

In many fields the more farsighted firms are looking ahead to inter-commodity competition and getting ready for it, so that when it comes it will own it, or at least control it. In this way the phonograph manufacturers and the telegraph companies turned toward radio, just as buggy makers and bicycle dealers turned to the automobile industry and the automobile manufacturers are turning to the airplane.

Of great economic and social significance is the competition of all industries for as much as they can get of the national income. Every industry is in competition with every other industry for its share, and as much more as it can get, of the consumer's dollar. Instalment selling is simply a highly dramatic way in which this inter-industrial competition is expressing itself. This week's pay envelope is pretty well used up, let us get our share of next week's and next year's, say the competing industries. And it is this inter-industrial competition which is raising our standards of living to the highest the world has ever seen.

In almost every industry the producer, middleman and retailer are competing with the others, up and down the line of distribution. Hand-to-mouth buying is simply a dramatic way in which this competition is expressing itself. In commodities as diverse as eggs and steel, producers become wholesalers and near-retailers, the steel mills will sell shapes to the man who buys a few tons on the same terms as to the man who buys by the thousand tons; the egg co-operative will sell eggs by the half case at the market price. Direct selling of brushes, kitchen utensils and electrical equipment is only a return to the old peddler, the pioneer merchant. The mail order houses long ago eliminated everybody but the letter-carrier.

In the steel industry the steel mills are competing with their own customers, the fabricators, and selling structural steel direct to the builders. Is it fair to compete with one's own customers? The new competition develops a double-jointed ethics of business.

There is not only a trend to control outlets, as when a copper mining company buys a brass factory, but there is the reverse trend for manufacturers and distributors to control their sources of raw materials. Why shouldn't Henry Ford buy and build steel, textile and glass plants and grow flax? Why shouldn't tire manufacturers buy rubber and cotton plantations?

In 1927 all these trends of the new competition will become more intense and more intricate. It will become so intricate that some of the trends will begin to reverse themselves. Already a large mail order house is opening retail stores. Some attempts to cut out the middleman will fail and those who learn the lesson will return to his services. Some who have added to their distribution business a manufacturing business will change their minds about the economy of trying to do two things at once. But while there will be reversals, in the main, the new competition will be intensified and magnified in all directions.

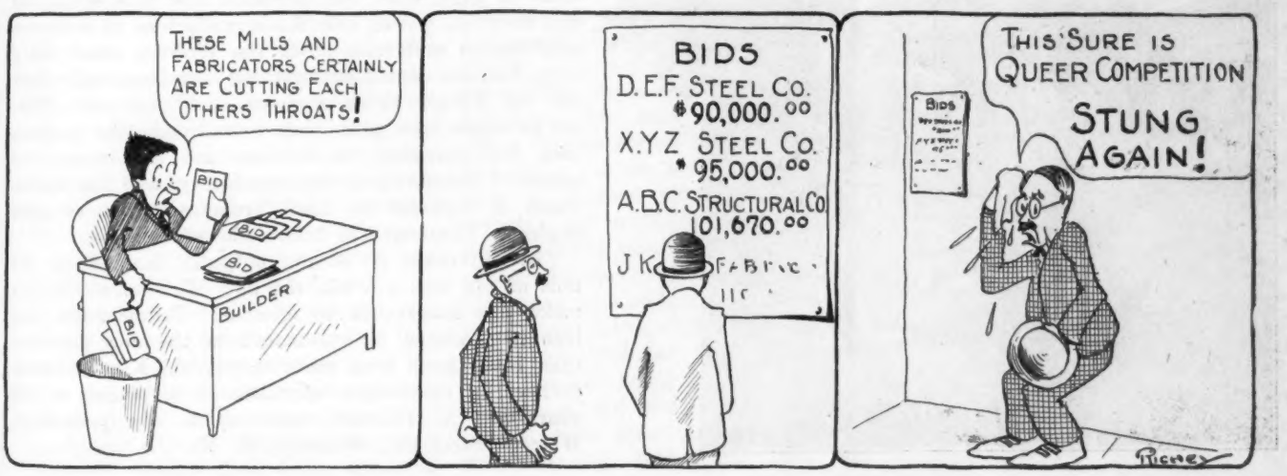
More and more we are beginning to realize that we are in competition with ourselves. Each of us occupies several positions in the economic structure and we perform several functions. Every factory employe who owns stock in his company and every utility customer who has bought a few shares in the company which serves him is competing with himself for the profits. Shall wages or dividends be increased? Shall rates or dividends be reduced?

The old competition was destructive, the new competition becomes creative. It becomes the new co-operation. Hundreds of associations are holding together competitors in a common cause. They organize within industries and co-operate because only in the new co-operation can they meet the new competition.

Wider and wider grows the sphere of the new competition and the new co-operation. It becomes more internationalized. It sets up new national antagonisms and sets up new ententes.

And with this new competition, perhaps will come a new economic statesmanship. Perhaps 1927 will see its beginning, perhaps 1928. The time seems to be coming for economic statesmanship to replace the political statesmanship which has controlled the destinies of mankind for so many centuries. We need men who can see the new competition, and beyond that into the new co-operation. We need men who can think in terms of world production and world distribution.

If It Were Not So Full of Tragedy



Applies Blast to 800-Ton Stack

New Unit Is Part of Expansion Program Now Underway in Steubenville District—Ladles and Granulating Pit Provide Means for Slag Disposal—Cooling Plates Installed Above the Mantle—Description of Furnace

By John D. Knox

A FEW years ago a blast furnace with a rated capacity of 500 or 600 tons of iron in 24 hours was considered a large stack; in November an 800-ton furnace began its official campaign at the Weirton, W. Va. division of the Weirton Steel Co. Completion of this unit, which is one of the largest stacks in this country, if not in the world is only part of an $18,000,000 improvement program recently undertaken by the company.

The program at the outset included new river docks, an additional battery of by-product coke ovens, four 250-ton open-hearth furnaces, a new hot and cold-rolled stripsheet department and a pipe mill in addition to the 800-ton blast furnace previously mentioned. The new stack, the by-product coke plant, three of the four open-hearths and the river dock now are in operation. The dock located on the Ohio river received its first shipment of coal Nov. 1, 1926. Approximately 400 tons of fuel is being handled an hour.

The dock layout includes a coal unloading tower for unloading shipments of coal received by river from the company's mines above Brownsville, Pa. Facilities including a 3½-mile railroad, dumping equipment and loading tipple were installed this year at this point for loading the coal into barges. The dock layout at Weirton also provides a harbor, the dock wall for which has been completed. A warehouse and modern facilities for loading and shipping finished steel products by river to the markets of the south and west are scheduled for completion during the second quarter.

The fourth new open-hearth will receive its first charge early in the first quarter of 1927. The structural steel for the new building to house the strip mill, which incidentally will roll stripsheets up to 48 inches wide, is now being erected and production is expected to be started early this summer. Following the completion of this unit the company expects to start building its tube mill, preliminary work on which now is under way. At present the company has an annual ingot capacity of 1,000,000 tons, but with the consummation of the final expansion program, which includes a third blast furnace, another battery of by-product coke ovens and additional open-hearths, its present steelmaking capacity will be greatly enlarged.

Stone Furnace Stands as Sentinel of By-Gone Days

THE old and the new. Within the limits of Hancock county, W. Va., and not over 4 miles apart, are to be found two interesting structures which represent the earliest and the latest types of iron blast furnaces in the United States. One is the old furnace built between 1790 and 1800 on the banks of King's Creek, a grand old relic with just enough stonework standing to show the original outline and size of the furnace.

From this furnace can be seen at night the glare of the modern blast furnace built a century and a quarter later by the Weirton Steel Co.

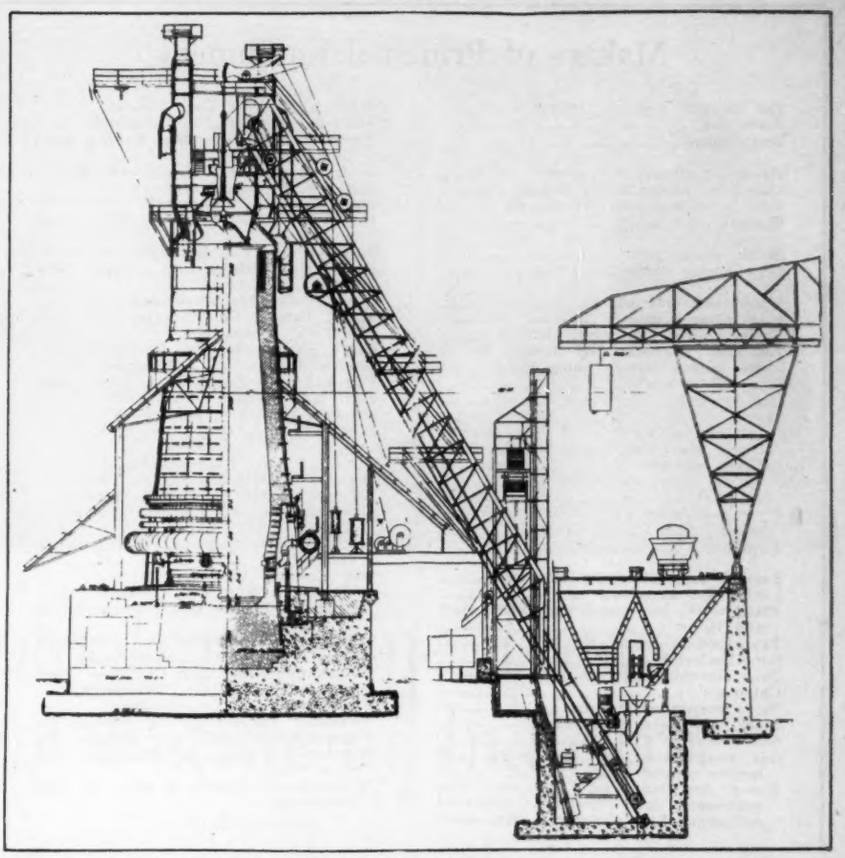
The old King's Creek furnace, like others of its time, was located near the foot of the hills which furnished the iron ore, limestone, and forests for the charcoal fuel. A stream nearby turned a wooden wheel that furnished power to blow air into the furnace.

Since the erection of this furnace many changes have come about; the blast furnace has developed hand in hand with the increased use of mechanical and electrical power and the manufacture of suitable construction materials. But the Weirton Steel Co.'s large furnace cannot do anything metallurgically that the old King's Creek furnace could not do. The old ox teams have given way to railroads, the baskets used for charging the furnace are supplanted by powerful electrically-driven machinery, and the water wheel is replaced by high pressure steam or gas engines. Charcoal has been followed by coke.

The difference is in the output. Instead of 25 tons of pig iron a week, the new Weirton stack can make this amount in 45 minutes. Today more pig iron is produced in one month in the new furnace than could have been made in the old King's Creek furnace in continuous operation in a period of 18 years.—F. A. HANLIN, *assistant to the president, Weirton Steel Co., Weirton, W. Va.*

No. 1 stack of the Weirton Steel Co. was blown in July 21, 1919 and was described in the October 2, 1919 issue of IRON TRADE REVIEW. At the time the furnace was built provisions were made for additional furnaces and, hence, it was only necessary to extend the stove foundations and the trestle to tie-in with the new unit. The design of the No. 2 stack, just completed, is much the same as the No. 1 furnace with the exception that the blast is heated in four stoves instead of three which serve the No. 1 stack; the lines of the furnace are larger than the first unit, providing 800 tons capacity in 24 hours compared with the 600-ton rating of the No. 1 stack; and, cooling plates have been installed above the mantle.

The stack, 92-feet high, rests on concrete foundations 20 feet above yard level to the center of the iron notch. Its hearth is 21½ feet diameter and the bosh 24 feet diameter. Approximately 660,000 brick of 9-inch equivalent were used to line the stack, which has a content of 43,000 cubic feet. The stack proper is supported by 12 cast-iron columns and is blown with 12 tuyeres. Eight rows of copper cooling plates were inserted above the mantle for cooling the inwall lining.



CROSS SECTION OF THE NEW 800-TON FURNACE OF THE WEIRTON STEEL CO., WEIRTON, W. VA.

How Slag Is Handled

Slag flushed from the furnace or skimmed from the iron during a cast is granulated in a concrete pit provided for this purpose. The cinder, however, may be run into ladles whenever necessary, several 315 cubic foot capacity thimbles being available. The cinder ladles are of the steam dumped type. The same system used on the No. 1 stack for handling granulated cinder is employed at the new installation. That is, the slag is transferred from the granulating pit to railroad hopper cars by a grab bucket suspended from a 5-ton traveling crane.

Adjoining the cinder yard runway is a yard equipped with a series of bins in which are stored sand, clay, coke dust and other materials for furnace use. These are taken into the cast house by a 4-ton monorail crane, which also is used to remove runner scrap and other materials from the furnace floor to cars spotted outside the cast house. Hot metal is cast into open-top ladles of 65-tons capacity. The metal either is taken to the open-hearth department or is poured into pig molds at the pig machine.

At the time the No. 1 furnace was built an ore yard, paralleling the trestle was provided. Stocking of the ore and limestone was done by two yard cranes each of which were equipped with a 40-cubic foot grab bucket. These also were employed for transferring the ore from the stock piles into the bins directly or for loading a 50-ton electrically-operated transfer car which distributed the material to the respective bins. Consequently, to take care of the new 800-ton furnace the ore storage yard was extended and a 10-ton ore bridge installed. The bridge has a span of 281½ feet and a runway 900 feet long. The bridge has an overall length of 339 feet.

All ore is brought into the plant in standard hopper cars and is unloaded by a car dumper of the traveling type. This unit will handle twenty 100-ton cars an hour. It has an overall height of 57 feet 10 inches. The hoisting rig is operated by two 175-horsepower motors. The longitudinal motion is accomplished by four 20-horsepower motors, one for each corner leg. Ore from the stock pile either is transferred direct to the bin system by the ore bridge or is loaded into a 50-ton electrically-operated transfer car which distributes it to the respective bins serving either furnace. The stock bins are of the steel suspended type and are equipped with Freyn type gates. These are operated by an air cylinder mounted on the scale car, 19 being provided for the storage of ore and limestone. Two central coke bins discharge directly into the skip tubs. The bins will hold approximately 250 tons of ore.

Ore and limestone are transferred from the bins to the skip tubs by an electrically-driven scale car of 20 tons capacity. Two double-compartment cars are provided, each having capacity of 400 cubic feet. The coke in transit from the bin to the skip tubs passes over disk-type grizzlies. The coke breeze, which passes through the grizzlies, is fed into a separate skip. When loaded, this skip automatically starts its ascent and dumps its load on the Savage-type shaking screens of ¾-inch mesh. These are located outside the stockhouse. The breeze passing through these screens is taken to the boilers and used for fuel, while the nut coke passing over the screens is returned to the furnace.

Filling is accomplished by two skips. These are operated by a hoist engine with a single drum, 66 inches diameter. The drum around which the skip cables are wound is connected through reduction gears to a 200-horsepower motor. The skip engine is housed in a building directly under the skip bridge.

The skips empty into a McKee-type revolving distributor, the charge being dropped into the furnace by the double bell system. Both bells are air operated. The large bell is 13 feet diameter and the small bell 5½ feet diameter. Gas is led out of

Makers of Principal Equipment

Car dumper, monorail trolley	Alliance Machine Co., Alliance, O.
Scale car	Atlas Car & Mfg. Co., Cleveland.
Stove burners	American Heat Economy Bureau, Inc., Pittsburgh.
Revolving distributor, goggle valves	Arthur G. McKee & Co., Cleveland.
Clay gun, cinder notch stopper	Edgar E. Brosius, Pittsburgh.
Cast house and slag pit buckets	Blaw-Knox Co., Pittsburgh.
Transfer car	Brown Hoisting Machinery Co., Cleveland.
Boiler draft fans	Buffalo Forge Co., Buffalo.
Coke braize stoker for boiler	Combustion Engineering Corp., New York.
Water softening plant	Dravo-Doyle Co., Pittsburgh.
Flat boiler arches	M. H. Detrick Co., Chicago.
Turbo blower condensers, two	Elliott Co., Pittsburgh.
Hot blast, explosion and chimney valves	Freyn Engineering Co., Chicago.
Power house service pump motor	General Electric Co., Schenectady, N. Y.
Monorail switch	Harnischfeger Sales Corp., Milwaukee.
Ore bridge	Heyl & Patterson, Pittsburgh.
Turbo blower	Ingersoll-Rand Co., New York.
Insulation of stoves, hot blast mains, bustle pipe and downcomers	Johns-Manville, Inc., New York.
Spillage elevator	Link-Belt Co., Indianapolis.
Arch for coke braize boiler	Liptak Fire Brick Arch Co., Chicago.
Skip hoist	Lidgerwood Mfg. Co., New York.
Structural work, bins, skip and cast house	McClintic-Marshall Co., Pittsburgh.
Turbines	Moore Steam Turbine Corp., Wellsville, N. Y.
Freight and passenger elevator	Otis Elevator Co., New York.
Lining for breeching	Philip Carey Mfg. Co., Lockland, O.
Plate work, hot metal and cinder cars and ladles	William B. Pollock Co., Youngstown, O.
Transformers	Pittsburgh Transformer Co., Pittsburgh.
Superheaters	Power Specialty Co., New York.
Coke screening and hoisting machinery	Robins Conveying Belt Co., New York.
Chimneys	Rust Engineering Co., Pittsburgh.
Stove burner draft fans	B. F. Sturtevant Co., Boston.
Stock bin gates	Treadwell Engineering Co., Easton, Pa.
Soot blowers	Vulcan Soot Cleaner Co., Duboise, Pa.
Gas compressor, and feed water and service pumps	Worthington Pump & Machinery Co., New York.
Motor generator set and switching equipment for substation, electrical equipment for coke braize skip hoist	Westinghouse Electric & Mfg. Co., East Pittsburgh.

the furnace through four uptakes 90 degrees apart. Downcomer pipes connect with the uptakes near the top and each two combine into a single pipe which leads into a primary dust-catcher. The dust-catcher, 24 x 40 feet, is of the centrifugal type. The gas passes through this unit and then is led into a Freyn-type whirler, 17 feet diameter and 30 feet high.

Following this stage of cleaning, part of the gas is led through a main to the boiler-house where it is used for steam generation, while the remaining gas is passed into a Brassert-type washer, 15 feet diameter and 64 feet high. The gas issuing from this washer carries little dust, but it is passed into a drier where considerable moisture and entrained water is extracted. The dust-catcher, whirler, gas washer and drier are equipped with secondary gas mains and goggle valves, which permit cutting off any unit in case circumstances warrant. The dust entrapped in both the dust-catcher and whirler is converted into sinter for recharging into the furnace. The sintering plant was built previously.

Blast is heated in four stoves, 25 feet diameter and 100 feet high. The height of the stoves is the same as those serving the No. 1 furnace, but the diameter has been increased 3 feet. One stove is interchangeable, that is, it can be closed off from the No. 2 stack and used to heat the blast for the No. 1 furnace and vice versa. The lining for each stove required 524,900 bricks of 9-inch equivalent. The checker openings in each stove are 4½ inches square and, with the brick in the combustion chamber, offer 91,400 square feet of heating surface. The stoves are of the 2-pass side combustion type. Each stove is equipped with a Mathesius vertical gate type hot-blast valve and a Steinbart-type gas burner. Two chimney valves of the Weinel-type are provided for each stove and through these the products of combustion pass into a common main and then into a 225-foot concrete chimney serving the No. 1 stack.

Eight Heine-type 4-drum boilers were added to the boiler-house equipment. Each boiler supplies steam at 225 pounds pressure per square inch and has a rating of 896-horsepower. The boilers are equipped with Steinbart-type burners for burning blast furnace gas. The superheaters which serve each boiler are of the bare tube design, and are arranged vertically in the boiler wall opposite the burner.

The boiler-house originally built with the No. 1 furnace was extended 208 feet to house the new equipment. Products of combustion from the boilers are exhausted into the atmosphere through two concrete stacks, one 12 feet diameter and the other 15 feet diameter and both 225 feet high.

Blast is supplied to the furnace by a turbo blower. The air delivered against a pressure of 20-pounds per square inch amounts to 70,000 cubic feet a minute and at 30 pounds pressure 60,000 cubic feet are supplied. Two EHiot-type condensers were installed. One is used expressly for the new turbo blower, the other will serve the blower which will be installed when another furnace is added.

The water softener plant, which was built at the same time as the No. 1 furnace, was removed to make the necessary extension to the boiler-house. A new hot process continuous treating plant was built. It includes eight Cochrane-type pressure filters with capacity for 160,000 gallons of feed water an hour. The treating plant is said to be the largest continuous hot water softener in the world. To take care of the increased demand for service water for the new blast furnace and the additional open-hearths, three 10,000 gallon pumps were installed. Additional generating capacity has been increased by the addition to the existing power station of a 7500-kilowatt generator with a Wheeler-type surface condenser. A substation was built to furnish direct current for the operation of the ore bridge and for other plant purposes. In this substation two 500-kilowatt generators were installed.

To prepare for the new unloading dock it was necessary to dredge from the bottom of the Ohio river over the entire area from the solid rock, a harbor 1500 feet long, 110 feet wide and 14 feet below full pool elevation. The unloading dock is 400 feet long, of reinforced concrete construction and extends 38 feet above full pool elevation. On this dock has been installed a Mead-Morrison type 4-ton unloading tower with a capacity of 400 tons of coal an hour. From the unloading tower the coal is delivered by a 36-inch conveyor belt extending 650 feet up the bank, to a screening and transfer station. This station is so arranged that coking coal can be delivered direct to the breaker building as run-of-mine coal or may be screened, diverting the lump coal to storage and the fines to the ovens.

This system also contains equipment for handling steam and gas coal, grizzly screens being installed to separate the coal into two grades; the fines for use under stoker-fired boilers and the lump coal for gas producers or other metallurgical purposes. Three reinforced ice breakers built at the head of the harbor protect the barges and equipment from floating ice, timber and other debris.

The Harbor at Duluth

Minnesota Iron Mine Taxes Darkening Future of Industry

By L. A. Rossman

DULUTH has its eyes toward the sea, but it also needs to look back to the hills of northeastern Minnesota. From the mines of the iron ranges comes the ore upon which the prosperity of this whole section of the country is based. Over that rusty brown trail which leads through the hills tumbles the wealth without which "the head of the lakes" would be a fishing village, with a few grain elevators. Without iron ore and all that it means Duluth could have no vision of an outlet to the sea.

Minnesota has always taken great pride in its natural resources. The people of the state have imagined that the resources were unlimited and inexhaustible. Only a few decades ago the lumberman said that Minnesota had sufficient standing timber to supply the Northwest for all time. Yet today one may travel miles throughout northeastern Minnesota without seeing a virgin Norway or white pine tree. In 1925 the people of Minnesota paid over $12,000,000 in freight on lumber imported from the West.

Ore Supplies Diminishing

We have told the world about the wild life of northern Minnesota. We have built highways into nearly every township. But unless we launch a program of wild-life conservation more extensive, more scientific and more vigorous than any yet conceived in 10 or 20 years there will not be a game bird in the air, a game fish in the water or a game animal in the woods of northern Minnesota.

Forests will grow, game and fish may be protected and propagated, but iron ore once removed is gone forever. When mining goes there is gone the support of a score of cities and villages and an industry upon which 150,000 people of northern Minnesota depend for their existence. A capital investment of $300,000,000 will lie idle and useless.

We have made an error in believing that the iron ore situation was a local problem, a problem for northeastern Minnesota, for St. Louis, Itasca and Crow Wing counties. We have failed to realize the importance of the mineral industry to the entire state. We have overlooked the fact that 1,750,000 people are directly employed in industries in the Middle West that are dependent on the existence of the iron ore deposits in the Lake Superior district.

Problem of Importance to Nation

Over 8,000,000 people of the area stretching from the Alleghenies to the Rockies are dependent on the iron ore industry of this section. Over three-fourths of the industrial capital of the Middle West is invested because of the proximity of an iron supply. When the iron ore industry of the Lake Superior district fails, the activity so essential to the prosperity of the Middle West will gradually move to the Atlantic seaboard.

The manufacturer, the jobber, and the retailer will find markets dwin-

Fairer Attitude Needed

MINNESOTA iron mine operators have been fighting against abnormally high taxes for years, and they now are confronted with a movement in the legislature to increase the so-called occupation, or tonnage, tax. IRON TRADE REVIEW *has pointed out on many occasions the specific amount of their taxes, in comparison with other operating costs and prices of their product. This was one of the features of the review of Lake Superior mine operations, in* IRON TRADE REVIEW'S *annual issue, Jan. 7. As shown in the table on the following page, embodying further data for 1927, the Minnesota mines pay 80 to 99 per cent of the taxes in the principal range cities. The tabulations were made by a well-known mining engineer of Duluth. The author of the accompanying article is editor of a Grand Rapids, Minn., newspaper. The article admirably expresses the thought of many public-spirited citizens of Minnesota on taxing the iron mines.*

Mines Pay 80 to 99 Per Cent of Taxes in Minnesota Range Towns

Municipality	Population	Tax payable, 1927	Per cent of tax against mines	Tax per capita	Tax per capita, outside mine payments
Duluth	118,000	$5,546,600	00.0	$ 47.16	$47.16
Hibbing	17,000	4,563,600	95.7	268.45	65.51
Buhl	2,000	874,500	96.5	437.24	15.30
Mountain Iron	1,000	563,800	99.0	563.70	6.40
Virginia	15,000	1,221,800	80.0	81.47	17.80
Eveleth	6,000	1,455,300	92.6	242.55	17.87

dling and demand diminished. The farmer also is interested. Remove the activities now dependent on Lake Superior ores to the eastern coast and the farmer of the Middle West will find the barriers of transportation insurmountable. The iron ore industry is state-wide and nation-wide in its importance. It is even international in its aspects.

Calumet, Mich., with a population of 40,000 one time, believed in its future just as enthusiastically as do the people of the Mesabi range communities. Yet Calmuet today has less than half its former population. Scores of illustrations of declining prosperity in mineral regions might be cited but one general underlying fact is important, the declines have not been due so much to exhaustion of mineral deposits as to changes in economic conditions which made mining unprofitable.

Fewer Men Employed

Some of those economic forces which have operated in other mining sections are to be found on the Mesabi range today. The mine inspector's report for St. Louis county shows that the number of men employed in the mines of the county today is about 60 per cent of the number employed 15 years ago. Go east from Eveleth and in that section where underground mining with its large employment of men once flourished you will find hardly a wheel turning. The cows eat grass in the location yards, and the windows of the location houses are boarded up. Go to the western end of the Mesabi and in the Canisteo district of the Oliver Iron Mining Co., where a decade ago 1300 men were employed today less than 500 are on the payroll.

Such changes have not come because of inefficient mining methods. In the past ten years the efficiency of underground mining has doubled. The process of washing or concentrating iron ore has been successful yet with this fundamental condition which should cause increased activity mining has concentrated more than ever in the central Mesabi. High-grade ores, valuable today, priceless tomorrow, are being hurried out of the state.

Iron ore is receiving the same destructive depletion that timber once received. Mining operations on the Mesabi today are directed to the heart of the range, the exhaustion of its rich ore bodies, and while this proceeds the outlying deposits, east and west, are left idle. Mineral leases are canceled, homes are empty and villages deserted. Underground mining is wanted because it employs many workers, but at many mines the situation is so hopeless that virtual abandonment has resulted.

The great future of the Mesabi rests in the development of its low-grade reserves, yet within the past five years no new washing plants have been built on the western Mesabi, and the tendency is away from the development which insures activity for centuries rather than decades.

The central Mesabi has fallen heir to that prosperity which has left the east and west, but how prosperous is that section? In Virginia families are moving out. In Hibbing there are 335 empty homes and apartments and in August 1926, 110 families moved from the community. The general prosperity of the Mesabi range has never faced longer continued depression or more unstable prospects for the future.

Mines Overdeveloped

The causes leading to the decline of employment, the basis of prosperity within the mineral section, are several. One of the first to be considered is the fact that under the stimulus of wartime activity a large amount of development work was done, so much that the producing ability of the Mesabi may continue at a high rate for many years without normal development activity. It is said that the ore producing capacity of the Lake Superior district is about 85,000,000 tons a year, and the normal demand is about 60,000,000 tons. If this were the only trouble the solution would be simple. All that would be needed would be to wait a few years for production to catch up and make demands for new work.

The next factor is that of increased efficiency in mining. Under the necessity of low producing costs the mineral interests have made wonderful advances in mining methods. Underground men produce today about twice the tonnage they produced ten years ago. In open pit mining, with large shovels, electrical equipment, and important new mechanical devices for handling trackage and dirt, even greater efficiency has been established.

If the Lake Superior region were failing because its mining methods were antiquated and inefficient there would be real cause for apprehension. Some complain that machinery is coming in and men are going out.

The vital indication is the declining importance of the Lake Superior district in iron ore production. In 1925 the consumption of iron and steel in the United States was not far from that of 1916. Yet the iron ore shipments from the Lake Superior district were 11,000,000 tons less in 1925 than in 1916. In 1913 the Mesabi range furnished 55 per cent of the ore that went into domestic pig iron. In 1925 the Mesabi furnished 48.9 per cent of that ore.

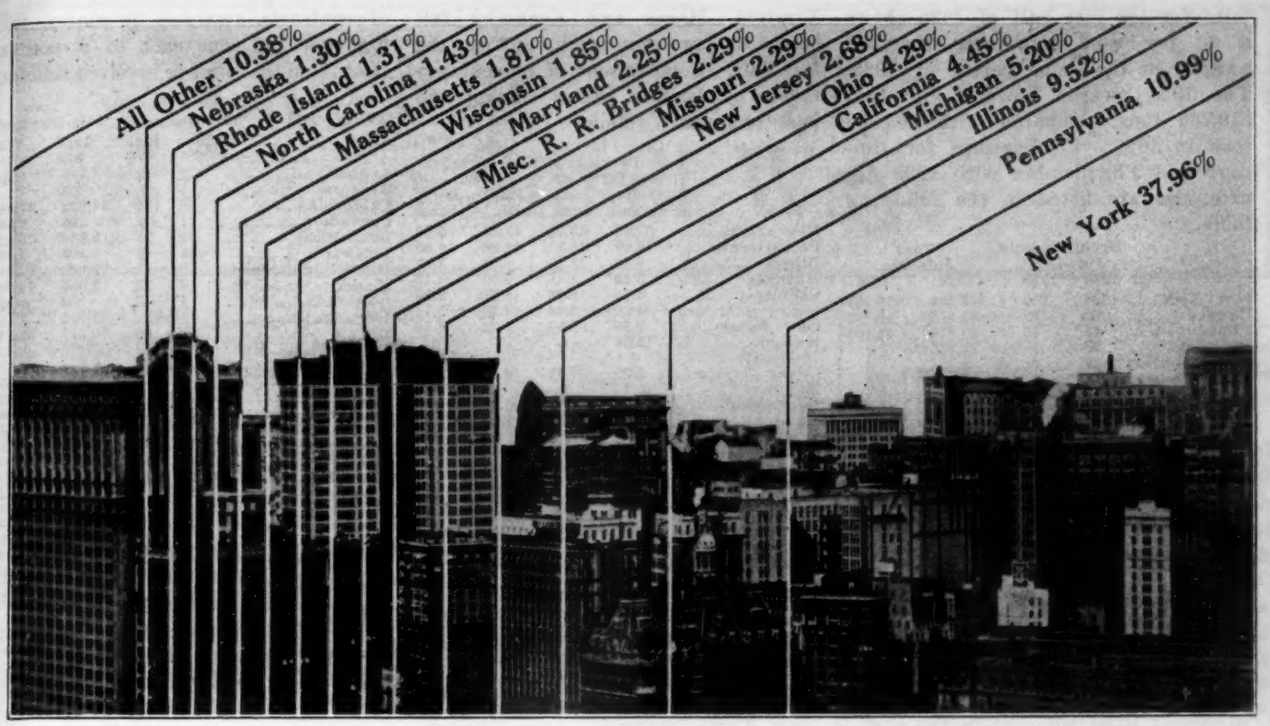
Decline Is Significant

During the seven years 1912 to 1918, inclusive, the Lake Superior district furnished 79.8 per cent of the iron ore which went into domestic pig iron production. During the past seven years the Lake Superior district furnished 75.7 per cent of that ore. Such figures may not in themselves appear startling, but this decline comes in the face of all the elements which should lead to the greater domination by the Lake Superior mining region. Despite the fact that the efficiency of ore producing methods has increased, despite the enormous deposits already developed, despite two cuts in prices of ore in two years, the part which the Mesabi range and Lake Superior ore is playing in pig iron production is constantly decreasing.

There is competition from southern ore, competition in eastern ore and competition in foreign ore. What does it do? Some years ago the Lake Superior district supplied 5,000,000 tons annually to the furnaces lying east of the Alleghenies. In 1925 a little over 1,000,000 tons was sent to those furnaces.

India with its vast deposits of iron

(*Concluded on Page* 266)



Relative importance of various leading states in structural shape consumption is indicated by the percentages in the above illustration

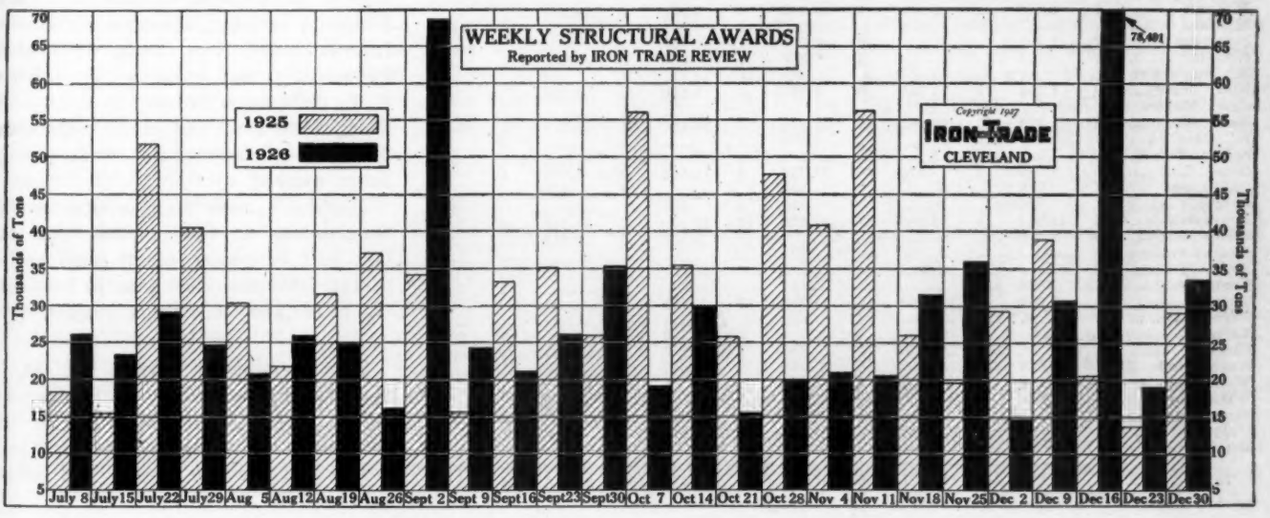
Increased Diversification Marks Last Half Structural Sales

By Robert T. Mason

INCREASED diversification marked the consumption of structural steel in the last half of 1926 as revealed in the fourth semi-annual survey by IRON TRADE REVIEW, based on its weekly tabulation of awards. Although New York increased its dominant position in the last half of 1926, taking 37.96 per cent of the total, compared with 33.76 per cent in the January-June period, it fell below the 41.84 per cent mark of the last six months in 1925.

For purposes of classification, commercial buildings include lofts, offices, theaters and similar structures; residential buildings are composed of apartments, hotels and dwellings; industrial plants consist of manufacturing buildings, garages, warehouses, power houses, etc.; bridges are highway and railroad types; public buildings are churches, schools, clubs, hospitals, municipal structures, etc., and miscellaneous includes all other.

Activity, in number of projects, increased greatly in New York, although the tonnage involved dropped considerably. In the metropolitan district, including suburbs in New York state and Long Island, 298 projects were launched, involving upwards of 100 tons each of structural steel. This



total for the last half of 1926 shows a 40 per cent gain over the 219 awards in the same period of 1925. The 1925 awards however, involved 310,735 tons, compared with 263,360 tons in 1926. Comparisons for Chicago and Philadelphia with 1925 figures also are listed in the following table:

	No. of Projects July-Dec.		Tons July-Dec.	
	1926	1925	1926	1925
New York*.....	298	219	263,360	310,735
Chicago	40	52	52,637	59,366
Philadelphia ..	43	43	33,853	47,195
Pittsburgh	30	†	21,635	†
San Francisco	27	†	8,761	†
Los Angeles....	14	†	6,898	†
Detroit	14	†	23,790	†

*Metropolitan New York, including Long Island but not New Jersey cities.
†Not listed separately in 1925.

Gains by New York, Michigan, Missouri and Maryland and losses by California, Ohio and Massachusetts were prominent in the trend of consumption indicated by states. Pennsylvania varied but slightly in its percentage to total steel consumed, taking 10 per cent in the first half of 1925, 12 per cent in the last half and 10.35 and 10.99 per cent in the corresponding divisions of 1926. Appearing among the larger users of structurals were Missouri, Maryland, North Carolina, Rhode Island and Nebraska for the first time. Florida, West Virginia, Maine and Kentucky fell below 1 per cent each during the last half. Comparisons of percentages taken by leading states during the past two years follow:

	Per Cent of Total Awards			
	1926		1925	
State	July-Dec.	Jan.-June	July-Dec.	Jan.-June
New York.....	37.96	33.76	41.84	35.00
Pennsylvania	10.99	10.35	12.00	10.00
Illinois	9.52	10.13	6.31	8.70
Michigan	5.20	2.16	1.99	3.10
California	4.45	8.06	5.20	9.80
Ohio	4.29	6.44	4.13	5.70
New Jersey.....	2.68	2.41	5.82	3.30
Missouri	2.29	†	†	†
Unlocated railroad bridges...	2.29	7.31	3.04	2.70
Maryland	2.25	†	†	†
Wisconsin	1.85	†	1.91	†
Massachusetts	1.81	2.3h	3.05	3.20
North Carolina..	1.48	†	†	†
Rhode Island.....	1.31	†	†	†
Nebraska	1.30	†	†	†
Florida	†	1.45	†	†
West Virginia....	†	1.29	†	†
Maine	†	1.17	†	†
Kentucky	†	1.05	†	†
Indiana	†	†	†	2.00
Texas	†	†	†	1.70
All other and miscellaneous....	10.38	12.07	14.11	14.80
	100.00	100.00	100.00	100.00

†Not listed separately in 1925.

Another new development in the IRON TRADE REVIEW survey, incorporated in this analysis, is the division into types of construction by states. The scope of industrial construction is shown in the accompanying table.

A comparison of the total number of contracts awarded by states, taking over 100 tons each of structural steel, and the tonnage involved follows:

	Number of Projects July-December		Tons July-December	
State	1926	1925	1926	1925
Alabama	1	3	350	600
Arizona	2	2	595	1,200
Arkansas	1	..	190	.....
California	82	176	33,022	43,511
Colorado	1	2	305	3,500
Connecticut	4	18	3,900	5,802
Delaware	1	2	100	1,400
District of Columbia	3	1	1,000	500
Florida	4	12	3,650	14,200
Georgia	1	3	200	997
Idaho	4	..	4,705	.....
Illinois	69	69	70,557	52,838
Indiana	7	12	3,875	4,999
Iowa	10	9	7,075	3,326
Kansas	1	1	135	298
Kentucky	6	7	2,610	3,108
Louisiana	7	4	6,277	3,562
Maine	2	1	750	150
Maryland	12	9	16,660	5,450
Massachusetts	39	56	13,420	25,510
Michigan	27	17	38,493	16,687
Minnesota	15	5	6,560	2,147
Mississippi	....	1	.....	1,500
Missouri	10	6	16,950	5,138
Montana	2	2	665	750
Nebraska	4	5	9,700	2,731
Nevada	3	2	1,405	950
New Hampshire	....	4	.....	720
New Jersey	36	41	19,880	48,690
New Mexico	....	....	.....	.....
New York	327	272	281,410	350,017
North Carolina.....	4	6	10,630	7,600
North Dakota.....	....	....	.....	.....
Ohio	53	54	31,770	34,596
Oklahoma	4	2	934	1,290
Oregon	5	10	1,500	4,851
Pennsylvania	124	140	81,513	105,415
Rhode Island	7	8	9,710	3,988
South Carolina	....	2	.....	800
South Dakota	....	1	.....	154
Tennessee	4	4	3,400	3,325
Texas	9	9	3,923	5,932
Utah	2	4	252	2,782
Vermont	4	....	3,700	.....
Virginia	2	2	1,350	1,100
Washington	21	25	4,977	10,108
West Virginia	1	6	4,610	6,330
Wisconsin	24	24	13,710	15,987
Wyoming	1	..	100	.....
Unlocated bridges....	32	38	17,026	25,438
Miscellaneous	5	11	7,700	6,450
Totals	992	990	742,244	836,427

Featuring the large awards of the second half of 1926 was the closing of 29,100 tons for two bridges between Staten Island, N. Y. and Perth Amboy and Elizabeth, N. J. The State Bank of Chicago building in Chicago, taking 12,000 tons, was the largest commercial contract. The civil courts building of St. Louis, requiring 9000 tons, featured public construction. Industrial awards included 9100 tons for plants for the Oakland Motor division of the General Motors Corp. The Pittsfield building, Chicago, 8000 tons; Lincoln hotel, New York, 6100 tons; Provident Trust building, Providence, R. I., 6000 tons; Salmon Towers, New York, 7800 tons and Hotel Schroeder, Milwaukee, 5000 tons, were other large awards.

Maryland owes its position among the leaders in consumption for the last half to power plant construction taking 5000 and 3000 tons in two contracts for the Conowingo project.

The Remington Arms Co. at a conference of executives at Bridgeport, Conn., recently announced the development of a new type of cartridge which will prevent erosion and barrel pitting.

DISTRIBUTION ACCORDING TO TYPES OF USES

	Commercial		Residential		Industrial		Bridges		Public Bldgs.		Miscellaneous	
	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons
Alabama	.....	.....	.....	.....	1	350	.....	.....	.....	.....	.....	.....
Arizona	1	320	.....	.....	.....	.....	.....	.....	.....	.....	1	275
Arkansas	.....	.....	.....	.....	.....	.....	.....	.....	1	190	.....	.....
California	16	9,825	16	3,976	13	4,873	10	2,090	20	8,815	7	3,443
Colorado	.....	.....	.....	.....	.....	.....	1	305	.....	.....	.....	.....
Connecticut	1	1,900	1	1,650	1	200	.....	.....	1	150	.....	.....
Delaware	.....	.....	.....	.....	1	100	.....	.....	.....	.....	.....	.....
Dist. of Col.....	.....	.....	.....	.....	1	400	.....	.....	1	400	1	200
Florida	1	700	.....	.....	1	1,800	.....	.....	.....	.....	1	1,150
Georgia	.....	.....	.....	.....	.....	.....	1	200	.....	.....	.....	.....
Idaho	.....	.....	.....	.....	2	1,300	2	3,405	.....	.....	.....	.....
Illinois	17	31,730	6	3,950	26	12,460	8	10,400	10	10,517	2	1,500
Indiana	1	700	.....	.....	3	2,800	2	215	1	160	.....	.....
Iowa	1	1,000	.....	.....	5	4,545	2	270	2	1,260	.....	.....
Kansas	1	135	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kentucky	2	1,250	.....	.....	3	460	1	900	.....	.....	.....	.....
Louisiana	1	500	.....	.....	1	600	.....	.....	3	3,777	2	1,400
Maine	.....	.....	.....	.....	1	450	1	300	.....	.....	.....	.....
Maryland	2	1,060	.....	.....	6	10,700	1	250	2	2,650	1	2,000
Massachusetts..	9	3,370	3	850	12	4,045	5	2,895	10	2,270	.....	.....
Michigan	8	19,200	.....	.....	13	17,580	2	353	2	700	2	660
Minnesota	1	125	.....	.....	6	1,500	6	2,185	2	2,750	.....	.....
Mississippi	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri	1	2,500	.....	.....	5	1,890	1	2,300	3	10,260	.....	.....
Montana	.....	.....	.....	.....	.....	.....	2	665	.....	.....	.....	.....
Nebraska	2	1,400	.....	.....	1	7,500	1	800	.....	.....	.....	.....
Nevada	1	110	.....	.....	1	300	1	995	.....	.....	.....	.....
N. Hampshire	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey....	9	4,795	4	1,725	9	4,175	8	6,260	6	2,925	.....	.....
New Mexico	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York.....	91	72,893	107	98,295	46	22,122	12	38,807	55	24,773	16	24,520
N. Carolina....	1	330	.....	.....	2	9,400	.....	.....	.....	.....	1	900
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	8	4,610	1	400	29	11,710	6	11,200	8	3,750	1	100
Oklahoma	2	670	.....	.....	1	100	.....	.....	1	164	.....	.....
Oregon	1	225	.....	.....	1	350	3	925	.....	.....	.....	.....
Pennsylvania..	36	28,683	5	4,585	36	22,225	11	11,830	27	11,740	9	2,450
Rhode Island..	3	7,470	.....	.....	.....	.....	1	1,200	3	1,040	.....	.....
South Carolina	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee	1	850	.....	.....	2	550	.....	.....	.....	.....	1	2,000
Texas	2	1,350	1	700	4	1,390	2	483	.....	.....	.....	.....
Utah	.....	.....	.....	.....	2	252	.....	.....	.....	.....	.....	.....
Vermont	.....	.....	.....	.....	.....	.....	1	200	.....	.....	3	3,500
Virginia	.....	.....	.....	.....	1	850	1	500	.....	.....	.....	.....
Washington	2	426	.....	.....	6	966	8	3,040	5	545	.....	.....
W. Virginia..	1	100	.....	.....	4	2,300	3	1,400	1	700	1	110
Wisconsin	5	7,020	2	450	8	2,830	5	1,730	4	1,680	.....	.....
Wyoming	.....	.....	.....	.....	1	100	.....	.....	.....	.....	.....	.....
Unlocated	.....	.....	.....	.....	1	750	31	16,276	.....	.....	.....	.....
Miscellaneous	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	7,700
Totals	228	205,247	146	116,581	256	153,923	140	122,379	168	91,216	54	51,908

Large Uses of Steel In Small Ways

IN WEAVING, it is necessary to pass alternate warp threads over and under the filling threads, thus producing a fabric in which the strands are locked at right angles to each other. Alternate warp threads are lifted and a shuttle passed between the upper and lower threads, carrying the filling thread across the warp. This, in brief, is the manner in which all woven fabrics, not only of silk, cotton and wool, but of metal wire, are produced.

Elevating and lowering of the warp threads is accomplished by means of heddles which are mounted in harness frames. Heddles should be slender so that they can be mounted close together to permit weaving fine mesh. Design fabrics are produced mostly on jacquard looms having individual control of the warp threads. In these looms the old-time braided cotton heddles are employed, with a tendency toward an increasing use of steel heddles. In plain weaving, such as in print cloth and ginghams, cotton and flat steel heddles are used almost exclusively. In fancy pattern weaving, flat steel and round wire heddles are employed quite generally. It is estimated that fully 90 per cent of the heddles employed in such weaving mills in this country are of steel. The round wire heddles, to a large extent, are imported from Europe. The steel heddles are of three types. The oldest is simply one strand of wire, turned over slightly, and twisted with mortises at top, bottom and center. A similar improved heddle is made of twin wires; these are soldered together their full length. The third type, the flat steel heddle, is made of cold-drawn, flat steel wire, the holes being formed by slitting and expanding the metal. It is estimated that this third type embraces 70 per cent of all the metal heddles used in the United States. The twisted and twin-wire heddles mentioned above are made of soft steel wire and some of nickel steel wire. The soft steel heddles are coated with tin and copper to prevent rust and corrosion which would end their usefulness. This wire ranges from 0.007 to 0.035-inch in diameter.

The flat steel heddles are patented and manufactured by a company in Philadelphia which imports wire rods from Sweden and has them drawn down into round wire ranging from 0.031 to 0.100-inch in diameter. It then cold rolls the round wire flat to the desired thickness. After being cut to length, the flat wire is punched in the middle and at the ends by specially designed mortises. Then the slits are expanded into the desired holes. Finished heddles range from 0.008 to 0.045-inch thick. These thicknesses cover the requirements of all silk, cotton and woolen goods including duck and tire fabrics. These heddles, in order that they may have a smooth, rust-proof surface, are coated with nickel, cadmium or copper.

In the manufacture of the flat steel heddles, American steel was used during the war instead of Swedish steel. It did not prove as successful as desired and after the war Swedish steel again was employed.

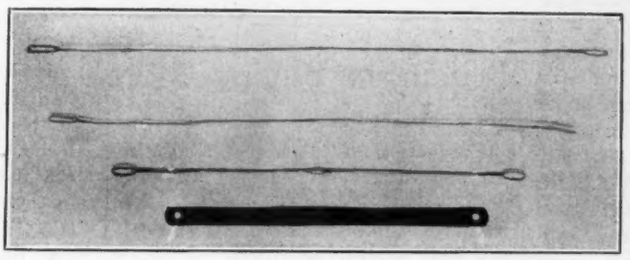
Large numbers of heddles are consumed by the weaving industries of the United States. The looms of the country run into the hundreds of thousands. Among them are 10 huge wire cloth looms, each 45 feet wide, imported from Germany, each of which is equipped with approximately 18,000 heddles. Heddles are subjected to considerable wear. Although difficult to approximate with any degree of accuracy the amount of material going into the manufacture of the heddles consumed in this country, one well-informed authority estimates that, including wastage, the total is about 1000 tons of steel per year.

Steel Heddles

THIS is the eighty-second of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the great American tonnage.

The first article on "corsets" appeared Nov. 22, 1923. Vol. I of "Large Uses of Steel in Small Ways" containing the first and 50 other articles has just been published. Copies are available from Penton Publishing Co. at $1. Other articles appearing every two weeks and not included in Vol. I are:

Tie Plates	*Camp Stoves*
Tacks	*Bottle Caps*
Knives and Forks	*Artificial Limbs*
Fence Posts	*Finger Nail Files*
Dental Drills	*Pencil Lead Boxes*
Rat Guards	*Small Steel Cases*
Overall Trimmings	*Lace Tips*
Shoe Steel	*Oil Cups*
Skates	*Ventilators*
Golf Clubs	*Toy Autos*
Burial Caskets	*Safes*
Flexible Shaft	*Scissors—Shears*
Steel Derricks	*Pistols*
Handle Cores	*Milk, Ice Cream Cans*
Typewriters	*Telephone Indices*
Steel Cross Arms	



DIFFERENT TYPES AND STYLES OF STEEL HEDDLES USED IN WEAVING OF FABRICS

Iron, Steel Employment

Iron and steel plant operations in December were curtailed somewhat but the volume of employment showed little change, according to the employment service of the department of labor.

"The outlook for January," says the service, "indicates that general industrial employment conditions throughout the country should show improvement over those existing during December. "A further seasonal reduction in employment occurred during December, particularly evident in outdoor occupations. It is gratifying to note that the decrease was small, and that the bulk of it can be attributed to winter weather curtailing construction work, and to inventory taking in the industrial plants.. "Building has been affected by weather conditions, and in many localities there is not sufficient work."

Minnesota Iron Taxes Darken Future

(*Concluded from Page* 262)

ore has been laying down on the eastern coast of the United States pig iron to the amount equal to the production of six blast furnaces. In dollars and cents India is not much farther from the eastern coast by water transportation than Buffalo is by rail. The British government overcomes many handicaps by giving a subsidy of $1.80 a ton for exported pig iron. Today the miners of the Mesabi range are in direct competition with the British government and the starving black men of India.

How are we going to meet this competition? Analyze the cost of producing Minnesota iron ore, and the predominating element is found to be taxation. The industry in Minnesota pays a larger percentage of its gross value for taxes than does any other industry in the United States. Taxes bear a larger relationship to other items of cost in the mining of iron ore than in any other industry.

High Taxes Paid

During the five years 1920 to 1925 the Minnesota iron mining industry has paid $113,000,000 in taxes, occupational taxes to the amount of $17,000,000, royalty taxes $3,000,000 more, and advalorem taxes $93,000,000.

This total of $113,000,000 was by coincidence just $1,000,000 more than the labor and every other item which entered into the cost of taking the ore from the ground. During the five years the value of the ore at the mines was very close to $500,000,000. The taxes paid amounted to 22.8 per cent of the value of the ore, not far from a fourth of its actual value. If every time a farmer milked a gallon of milk he had to give a quart for taxes there would be a revolution in Minnesota.

While other forms of property are assessed at 33 1/3 per cent or 40 per cent of their true and full value to obtain the taxable value, iron ore is assessed at 50 per cent and it is the only product in Minnesota so assessed. While legislators were seeking lower taxes upon the agricultural and other industries of the state, they placed an additional, super tax, on the iron mining industry. The iron mining industry is the only industry in Minnesota so taxed. On the Mesabi range there has been reared a false standard of local taxation. Public expenditures have gone to a point beyond reason.

The Lake Superior district may hold its domination in the iron ore industry only by adopting for itself certain fundamental principles of government and taxation. Taxes may be reduced by bringing to the Mesabi the normal rather than the abnormal view of public expenditures. This would offer inducements which would promote the utilization of low-grade ores and thus insure a mining life for many generations. The mineral industry of Minnesota needs no subsidy but the people should demand in their own interest that the taxes on the iron ore industry be reasonable and just.

Towns Have Tax Habit

On the Mesabi range the tax dollar has been given strange and unusual uses. It has been substituted in part for the industrial dollar. The use of public money in such ways has been much like a hypodermic to an individual. It has been an immediate stimulant but has left a habit and a weakness. Prosperous communities do not predicate their prosperity on taxation but on payrolls, or on the industrial dollar, which multiplies itself a hundred fold. The prosperous communities of the Northwest and of Minnesota base their prosperity upon welcome and respected industry.

Problems of iron ore production are essentially economic. On the Mesabi range the sentiment has developed that the problem of mining rests in the relationship between a mining company on one hand and the municipality on the other. A mining company represents but a condition. If economic conditions are favorable it will employ people and these people will buy goods. If conditions are not favorable it will transfer its operations to other sections and if all mining proves unprofiatble it will cease its work. The loss, however, to the mining company and its stockholders under such conditions is but a mill on the dollar which is lost to the community. The loss to the mining companies which ceased operations in the copper country was nothing compared to the loss which fell on merchants, property owners, and employes.

Britain Is Buying More American Tools

Production of machine tools in the United Kingdom during 1926, as well as their exportation, is estimated to have equalled that of 1925, despite the coal strike, according to W. L. Cooper, commercial attache of the United States department of commerce, London. Imports on the other hand, have been approximately 20 per cent greater and have been derived mostly from the United States and Germany. The market for American machine tools has been good and it is noteworthy that the higher lines have sold especially well. The principal demand for machine tools has been on the part of the automotive and electrical industries. Sales to shipbuilding, locomotive and textile plants, however, have been far below normal levels.

A feature of the market has been the preference for relatively high-priced American tools in the face of cheaper British and German machines. The competitive position of the American product is being strengthened by the growing tendency toward mass production in the automotive and allied trades and the fact that American tools are best adapted to this development. Some distributors of American lines now have from three to four times more orders booked than at the close of 1925. Accompanying this increased business is an insistence on the part of buyers upon long credit terms. Sales of American machine tools are expected to show a still larger increase in volume during 1927 as the industrial position of the consuming industries of the country improve.

Will Show Equipment at Power Conference

Some 250 manufacturers will display equipment at the Midwestern Engineering and Power exposition which is to be held in connection with the second annual Midwest Power conference at Chicago, Feb. 15-18. Equipment and practice in power generation, distribution and utilization will be demonstrated. The exhibition will be held at the Coliseum building, as will also the technical sessions of the conference. Sessions are to be held on Wednesday, Thursday and Friday mornings and Tuesday and Wednesday afternoons. At the Wednesday morning session, W. Sykes, consulting engineer, Inland Steel Co., Chicago, will present a paper, "Use of Power in Steel Mills."

Inspection trips to the Calumet station of the Commonwealth Edison Co. or the South Chicago works of the Illinois Steel Co. have been arranged for Thursday afternoon and to the by-product coke plant of the People's Gas Light & Coke Co., or the Crane Co. for Friday afternoon. The annual banquet will be held at the Palmer house on Thursday evening.

Individual Drive Gains Favor

Numerous High-Powered Mill Installations Built Recently Have Each Stand of Rolls Coupled to a Single Motor—Direct-Current Machines Are Finding Wider Application—Examples of New Mill Arrangements Presented

By J. D. Wright

EXISTING capacity of General Electric Co. motors driving rolling mills was increased during 1926 by the sale of more than 100 motors totaling approximately 160,000 horsepower. In number of equipments, this record exceeds last year's record by more than 40 per cent, although in total horsepower, last year's record has been exceeded by slightly more than 10 per cent. The increase in the number of motors is an indication of the trend toward individual drive for the various stands of rolling mills. This trend is also responsible for the large number of direct-current motors purchased during the year, as only approximately half of the total number were alternating-current machines; in last year's list two-thirds of the motors purchased were alternating-current machines.

Examples of the use of individual drives include a 13-stand mill which has been installed by the Illinois Steel Co. at its South Chicago plant, this mill being driven by 13 motors totaling 10,500 horsepower. At its Gary works a 15-stand mill will have 11 motors totaling 5350 horsepower and a 13-stand mill with nine motors totaling 6500 horsepower; all are direct-current adjustable speed.

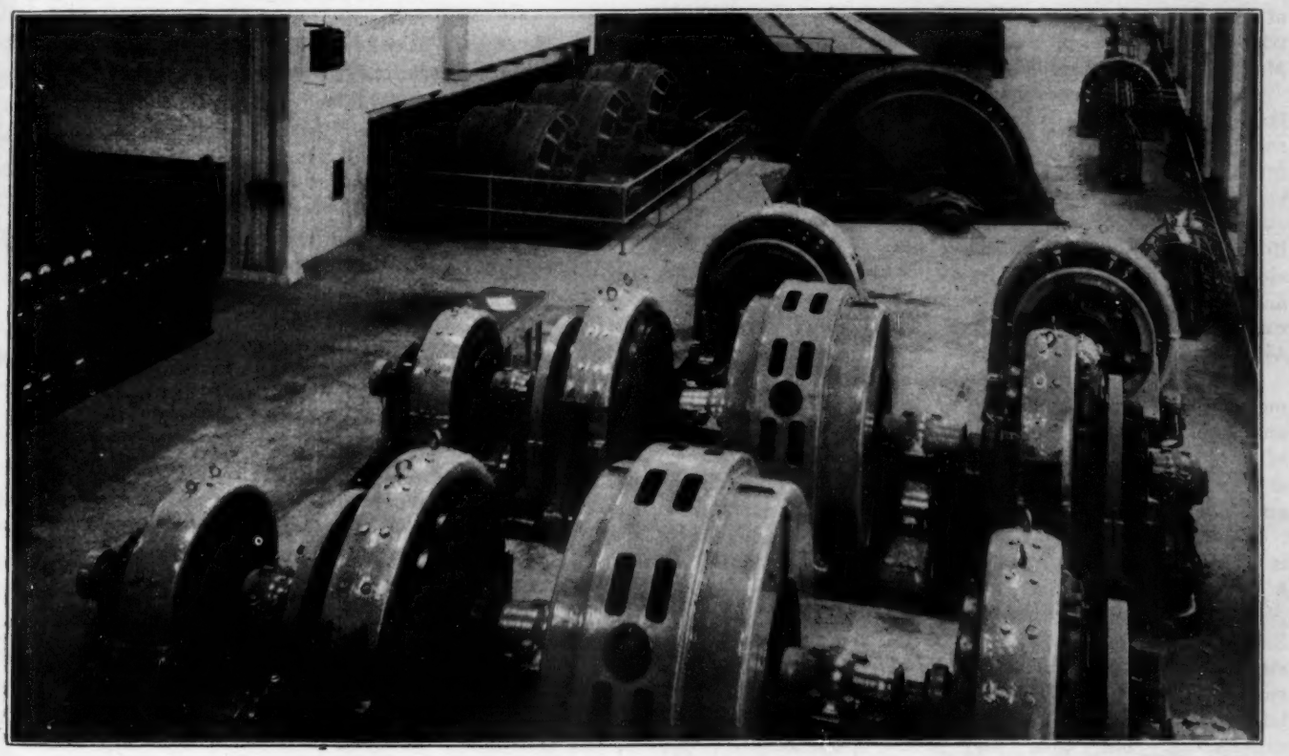
The author, J. D. Wright, is associated with the industrial engineering department, General Electric Co., Schenectady, N. Y.

Unit Drives Favored

The production of wide thin strip steel is another rolling mill development which has resulted in the installation of high-powered mills with individual drives. An interesting example is the continuous strip sheet mill of the Columbia Steel Co., Butler, Pa. The driving motors for this mill were purchased early in 1926 and placed in operation in November. The first stand is a 27-inch reversing mill driven by a 5000-horsepower, 70 to 150 revolutions a minute, 900-volt direct-current reversing motor. Power for this motor is obtained from a flywheel motor-generator consisting of one 5000-horsepower induction motor, a 44-ton flywheel, and two 2200-kilowatt generators. The remaining four stands each are driven by a 2000-horsepower, 200 to 400 revolutions per minute, 600-volt direct-current motor. Each stand is a 4-high roller-bearing mill, in which the working rolls are backed up by rolls of larger diameter. This arrangement insures uniform gage of a wide strip by preventing too great springing of the rolls.

Another mill of this type is being erected by the Weirton Steel Co., Weirton, W. Va. It will be driven by three 1500-horsepower induction motors, two 2000-horsepower and three 2500-horsepower, 200 to 400 revolutions per minute, 600-volt direct-current machines. Power for the five direct-current motors will be obtained from two 3000-kilowatt synchronous motor-generators.

The Bethlehem Steel Co., at its Sparrows Point plant is adding a continuous rolling mill to which three different types of motors will be ap-



MOTOR ROOM OF THE 21-INCH SHEET BAR AND SKELP MILL AT THE INDIANA HARBOR DIVISION OF THE YOUNGSTOWN SHEET & TUBE CO.

plied. There will be two synchronous motors, one 4000 horsepower, 83 revolutions per minute and one 6500 horsepower, 187 revolutions per minute. There will be one induction motor with a Scherbius speed regulating set. Incidentally, this is the largest Scherbius controlled rolling mill induction motor in this country. The last stand will be driven by a 2600-horsepower 600-volt direct-current motor.

At Benwood, W. Va., the Wheeling Steel Corp is installing a skelp mill driven by four 600-volt direct-current motors, one of which is rated 500 horsepower and the remaining machines each are rated 2000 horsepower.

Important equipments which have been placed in operation include a 3000-horsepower reversing motor which replaced an engine drive on a 24-inch bar mill at the Indiana Harbor plant of the Inland Steel Co.

Another large reversing equipment placed in operation during 1926 is a double unit direct-current motor rated 7000 horsepower which drives a 46-inch reversing slabbing mill at the Sparrows Point plant of the Bethlehem Steel Co. Power from this motor is derived from a flywheel set consisting of a 5000-horsepower 6600-volt induction motor, a 50-ton flywheel, and two 3000-kilowatt 650-volt direct-current generators. The Bethlehem company also put in operation at its Steelton plant a 3500-horsepower reversing motor which replaced a steam drive for the roughing stand of a 35-inch rail mill. The finishing stands are driven by a 4000-horsepower induction motor which is essentially a duplicate of the induction motor driving the flywheel set which furnishes power to the reversing mill motor.

An interesting drive which has recently been started is that on the 21-inch sheet bar and skelp mill at the Indiana Harbor plant of the Youngstown Sheet & Tube Co. The mill consists of 10 continuous stands divided into three groups. The first group of three stands is driven by a 3600 to 1940-horsepower induction motor with Kraemer speed control equipment. The second group of four stands is driven by a 7500 to 4040-horsepower induction motor with Kraemer control. Each of three finishing stands in the third group is driven by a 2000-horsepower, 600-volt, direct-current motor, power for which is derived from synchronous motor generators.

Pacific Coast Steel Executives Meet

Third Annual Convention of Steel and Allied Industries Considers Increasing Difficulties of Doing Business at Profit

ADDRESSES by Charles F. Abbott, executive director, American Institute of Steel Construction, and Wigginton E. Creed, president, Columbia Steel Corp., and Pacific Gas & Electric Co., San Francisco, featured the third annual convention of the Iron, Steel and Allied Industries of California, in session at Del Monte, Calif., Jan. 20-22.

The meetings were marked by a large attendance of eastern mill representatives, indicating the increasing interest in the Pacific Coast as a steel consuming district.

F. J. Koster, president of the California Barrel Co., San Francisco, was elected chairman of the Iron, Steel and Allied Industries organization, to succeed Maynard McFie of Los Angeles.

One of the outstanding developments of the convention, from an iron and steel viewpoint, was the passage of a resolution favoring the extension of markets for Pacific coast iron and steel products.

In his address entitled, "The Profit is Being Squeezed out of Business—A Discussion of the Cause with a Suggestion and Plan for Remedying the Situation," Mr. Abbott said: "If you start exchanging confidences with almost any business man today, he will tell you that his sales are holding up satisfactory, but that his profits are not what they should be. In fact, in many instances you will be told that profits seldom are realized."

While discussing the difficulty of doing business at a profit, Mr. Abbott said, "All I want to establish here is the fact that it is competition that is squeezing profits out of business." In offering solution to remedy this situation Mr. Abbott claimed that "the worst competition nearly always lies outside of the industry. It comes from another industry making a product or offering a service that is being sold as a substitute for the product or the service that you are offering."

Competition between individual companies is passing, according to Mr. Abbott, and in its place is coming a more intensified competition between highly organized industries. Mr. Abbott traced the development and growth of trade associations from the Civil War, showing that for several decades business leaders were unaware that competition was coming from without their industries, this phase of distribution difficulties becoming noticeable about 1900. Transition through price fixing, federal legislation and the decline of some trade associations also was pictured.

In discussing the development of trade associations in the past few years, Mr. Abbott said, in commenting on the activities of Secretary of Commerce Hoover, "He has done more by far, than any one man, to make the trade association movement the force for good that it is today."

Mr. Creed in his address before the association, predicted a break for the iron and steel industry on the Pacific Coast, and urged a greater diversity of products. He deplored the disorganization of American business, and cited that in a number of instances where industry has expanded beyond the power of potential market development.

Attendance at this convention was especially large, and was marked by the unusually great percentage of eastern mills represented.

In addition to the election of Mr. Koster as president, J. D. Fenstermacher, vice president of the Columbia Steel Corp., and Charles S. Knight, California Development association, were re-elected vice chairman and secretary respectively.

Two contracts covering four 33,333 kilovolt-ampere transformers and seven 25,000 kilovolt-ampere transformers respectively, for the southern California Edison Co. have been placed with the Westinghouse Electric & Mfg. Co. East Pittsburgh, Pa.

The 33,333 kilovolt-ampere units are the largest single phase transformers to be built from the standpoint of kilovolt-ampere capacity.All of these units are to be of the single phase, air-cooled type.

Editorials

Defining the Normality of Steel

IN AN unusual metallurgical contribution published about five years ago, McQuaid and Ehn introduced into technical language the terms "normal" and "abnormal" as describing the behavior of carburizing and tool steels during hardening. These terms now are given common usage and as generally accepted connote that normal steel will harden uniformly and abnormal steel will harden nonuniformly, or with soft spots. Further, the microstructures of these steels before carburization show no decided differences in composition.

At last week's meeting of the American Society for Steel Treating at Washington, one session was devoted to the subject of normality of steel, two most interesting papers being presented on the subject. Although the reports of these two researches contributed valuable data to existing information, they failed to give a conclusive cause for abnormality or lack of normality.

It was pretty well agreed by those taking part in the discussion that the terms "normal" and "abnormal" are unfortunate and misleading. As to abnormality of grain size, there can be no misunderstanding; but as to abnormality of structure, there can be. One investigator cautioned that the terms "normal" and "abnormal," as referring to the structural condition of steels, should not be considered synonomous with "superior" and "inferior," but rather as indicating *suitability* for different purposes. Inasmuch as these terms are causing confusion in the steel industry, is it not possible to suggest more acceptable and qualifying terms.

Better Ethics, Methods Win Again

STEEL fabricators in New England last week organized the Structural Steel Board of Trade of New England and thus took one more step toward better ethics in the steel building industry of the country. In Boston, as in many other cities, certain harmful practices had been allowed to gain a foothold, principally because no fabricator single-handed could discourage or prohibit them. Responsibility for design, size of structural members, and many other details was not clearly defined. Unwarranted fees were asked for certain unnecessary tasks and the fabricator's profit on practically every job was decreased by needless arbitrary expenses.

Some of these evils are to be corrected by the new association, which closely follows the program of the Structural Steel Board of Trade of New York, formed a year ago and now in successful operation. This general movement is in line with recommendations by American Institute of Steel Construction, and points the way.

Railroads Wisely Spend to Serve

INCREASED use of heavier standard steel rail sections by the railroads in the past few years directs attention again to the policies of the carriers to broaden their facilities for the sake of obtaining the utmost in service from their equipment. In 1925 and 1926 a number of the roads used the 110-pound and heavier sections for the first time. With the growing use of heavier rails comes the necessity for strengthening trackage by ballasting and through further maintenance work on existing roadbeds. Also, the heavier types of locomotives call for the rebuilding of bridges in some places and in strengthening of bridgework elsewhere. The railroads doubtless will continue to rehabilitate their permanent structures on a broad scale. It is safe to say they will continue to reap the reward of public approval, through better service and further efficiency in operations.

Fewer Working, Producing More

WHILE continuous employment of large numbers at high wages are some of the main reasons for unmatched American standards of living, the proportion of the population gainfully employed in some recent years has not been as large as that in leading European industrial countries.

The proportion has declined from 41.5 per cent in 1910 to 37.2 per cent in 1925. In 1920 it was 39.4 per cent, compared with 56.6 per cent gainfully employed in Germany; 44 per cent in Great Britain and Ireland and 53.3 per cent in France.

Less than four out of every ten persons in the United States were working for a living in 1925. Those who worked, numbering 42,910,000, were supporting the other 72,470,000. One reason assigned for the declining proportion of those gainfully employed is that the enrollment in schools and colleges is increasing. Immigration restriction also has tended to give us a larger proportion of aged and nonproductive persons.

The term "idle rich" went out of use with the beginning of the war; the class is not extinct, but

is less numerous than ever before. The increase in the proportion of population not gainfully employed does not suggest the "idle rich" are coming back, nor that work is becoming scarce or unpopular. It means that the financial condition of the head of the family is such that the youngsters can be educated, the elders kept in comfort and ease, and the women can devote more attention to the upbuilding of their homes.

Water Outlet for Steel Nearer

DEVELOPMENT of the Great Lakes-St. Lawrence waterway in preference to the Erie canal-Hudson river and Lake Ontario-Hudson river routes is recommended by the Hoover commissioin. This is undoubtedly in line with the best thought of the iron and steel industry of the Middle West. It is easier to visualize iron and steel moving in tonnage in salt water bottoms up the St. Lawrence than down the Hudson and out the already-congested New York gateway.

Construction of the Panama canal shut the Middle West, especially Chicago, out of many markets. Pittsburgh has been the chief beneficiary. It is natural that Chicago, resenting its restraint, should thrust to the Atlantic on the northeast and the Gulf on the south. Opening of these outlets, slowly but inevitably, will not disturb the inherent position of Pittsburgh, and Birmingham in lesser degree, but it will increase competition, especially on the west coast. Conceivably, Pittsburgh may also use the proposed ocean outlet.

Neither the St. Lawrence nor the Gulf-to-Lakes waterway will come in a day, but the Hoover report marks one preliminary step accomplished.

Human Maintenance That Pays

HUMAN life in the United States has a money value of two thousand billion dollars, actuaries estimated at the recent convention of the American Statistical association. This formidable total becomes more intelligible when it is simmered down to $20,000 for the average male and $15,000 for the average female. It also affords a yardstick for measuring safety and welfare work.

What the United States Steel Corp. has been doing may be accepted as typical of this activity in the steel industry. In 1925, the latest full year for which statistics are available, the corporation expended $12,867,359 upon its 249,833 employes for pensions, accident prevention and relief, sanitation, housing and general welfare work. The average per employe was $51.50.

In other words, to keep $20,000 worth of human property functioning efficiently and contentedly the corporation spent $51.50, or about one-fourth of 1 per cent. Cheap insurance, that. Outlays for safety and welfare work may loom large in the year's budgets but set against the money value of the lives they safeguard and lengthen they are negligible.

What Our Readers Are Thinking

Improving the St. Lawrence

To the Editor:

READING your monumental annual yearbook of Industry, I came across an article on transportation; how it is recasting the industrial map.

The writer points out the influence of railways on industrial growth, and what may result from revived use of waterways. But while the whole tenor of the article is an argument for waterways, the most important of them all is given rather contemptuous mention and, to my way of thinking, unjustly so. "Whether shrewd American money ever can be persuaded to invest $600,000,000 in St. Lawrence" etc, is not a fair presentation.

I suppose that by some method of addition a figure of something like $600,000,000 can be found for cost of both waterway and power development, but the writer is talking about waterway improvement throughout his article. This, for the St. Lawrence, is put by the engineers and the government commissions at about $143,000,000, which is only a little more than the partially canalized Ohio, which he says will be completed in 1929 at a cost of $105,000,000. And which of these two is of the more importance to the nation?

I'm not making any argument against improvement of the Ohio or Mississippi. I think in both cases, and in others too, the country has too long overlooked its manifest opportunities. I have seen too much of the use made of European waterways, the commerce carried on German rivers, down the Danube, through Sweden on the Goteborg canal, and in France, not to realize what such things mean.

It is conceded that the plight of the Middle West today in large part is due to the Panama canal, and that the cheaper carriage the St. Lawrence will afford will do more for the farmers and manufacturers of this vast region than any of the proposed relief bills, while unlike them it would be economically sound.

DWIGHT E. WOODBRIDGE,

Duluth, Minn.

Jan. 12, 1927.

(*NOTE*—The St. Lawrence river route as an outlet for Great Lakes shipping to the Atlantic ocean has become entangled in New York state and in Quebec-Ontario provincial politics. Its future is complicated by this environment. It was with these things in mind that the writer of the article on "Transportation Recasting the Industrial Map of the United States" mentioned the St. Lawrence project incidentally. IRON TRADE REVIEW is well aware of the possibilities in the St. Lawrence river project, believes it ultimately will be built, and has supported it in the past and will continue to do so.—*THE EDITORS.*)

The Reader's Page

Vol. LXXX, No. 4 IRON TRADE REVIEW Jan. 27, 1927

Where Selling Methods Can Be Improved

A GOOD perspective on modern competitive conditions, with some pertinent comment directed particularly at manufacturers and fabricators of steel, is presented in the leading article in this issue of IRON TRADE REVIEW. The author contrasts the older, more orderly system of merchandising, with the new high-pressure, kaleidoscopic methods, and while not overlooking certain benefits that accrue to producers and buyers says that practices today are resulting in double-jointed ethics detrimental generally to the trade. The custom of some steel mills competing against their own customers who fabricate the steel is one example referred to. Competition within the industry weakens it for competition against other industries, offering other materials. The author is a banker, who gives sound advice, while showing the need for it.

New Competition Bringing Furrows to the Executive Brow. Page 255.

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The Business Trend

Prospect Is for Industrial Improvement

By JOHN W. HILL, Financial Editor

BUSINESS developments of the first weeks of 1927 have shed little light upon the trend for the year. Although activities are increasing above the holiday and inventory period, caution is in the air. This is particularly true of the automobile and iron and steel industries. In these, however, the present pace is conspicuously low only by contrast with the high level of activity last autumn and one year ago.

IRON and steel plants are running at from 70 to 75 per cent of capacity now. In January, 1926, they were running between 85 and 90 per cent of capacity. The pause and hesitation of the trade partly reflects the curtailment in the automobile industry. This is a commentary upon the importance of the automobile as a great consumer of steel, now taking about 15 per cent of all finished steel made.

IN DECEMBER the production of passenger cars and trucks dropped to 173,000. This was the lowest figure for any month since February, 1922. It is at depression levels representing 38 per cent of the industry's peak output of April, 1926, and 30 per cent of the estimated capacity of the industry.

THE production for the year was 4,465,000 cars and trucks, or 3 per cent more than in 1925, the previous high record. The gain over 1925 was somewhat less than previously had been estimated. This is explained by the severe curtailment of production in November and December.

THIS curtailment, actually, is far from being unfavorable. In fact it is constructive evidence that the producers of automobiles are alive to realities. The big outputs of last year outran sales. The result was that stocks began to pile up in the hands of dealers. Curtailment means that producers are seeking to avoid glutting the market.

PRODUCTION is gaining now, but not rapidly. Producers are proceeding cautiously. Meanwhile, stocks are being cut down and the approach of spring will bring a normal expansion of demand. This will stimulate production and also benefit the steel trade. The outlook is for some improvement in general industrial activities in the near future.

The Barometer of Business

Industrial Indicators

	Dec., 1926	One month ago	One year ago	1913
Pig iron output (Daily average, tons	99,826	107,900	105,203	83,900
Blast furnace index, 60 per cent—normal	55	57.7	60.7	62.8
Unfilled orders (tons)	3,960	3,807,000	5,033,364	4,513,000
Ingot output (Daily average, tons)	133,000	143,000	152,916	
Dodge Bldg., awards in 27 states (sq. ft.)	55,489,000	61,037,000	63,736,000	31,250,000
Automobile output	173,000	266,000	319,000	
Coal output, tons	57,847,000	59,900,000	52,812,000	39,869,000
Business failures; number	2,069	1,830	1,878	1,336
Business failures; liabilities	$45,619,578	$32,693,000	$36,528,000	$22,732,000
Cement production, Bbls.	10,744,000	14,193,000	10,809,000	7,704,000
Cotton consumption, bales	605,217	583,950	575,271	438,218
Car loadings (weekly average	945,000	1,068,000	889,000	

Foreign Trade

	Dec., 1926	One month ago	One year ago	1913
Exports	$467,000,000	$481,000,000	$468,000,000	$194,000,000
Imports	$361,000,000	$376,000,000	$394,000,000	$149,900,000
Gold exports	$7,196,278	$7,727,186	$5,967,727	$5,234,000
Gold imports	$16,971,857	$16,737,800	$7,216,004	$5,900,000

Foreign Exchange

	Normal	Jan. 24, 1926	One month ago	One year ago
Sterling	$4.86	$4.85	$4.84	$4.77
Francs	19.3c	3.95c	4.00c	5.39c
Lira	19.3c	4.29c	4.15c	4.17c
Marks	23.8c	23.69c	23.70c	23.70c

Financial Indicators

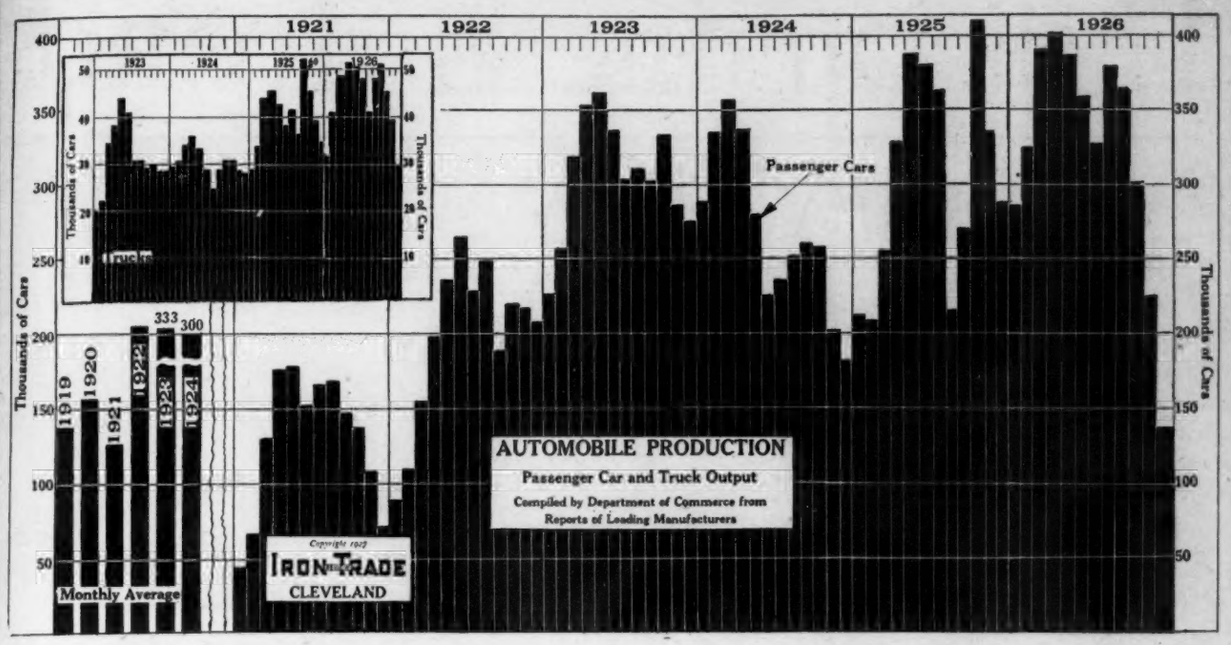
	Dec., 1926	One month ago	One year ago	1913
25 Industrial stocks	**$173.80	$180.05	$179.04	$58.19
25 Rail stocks	**$102.60	$101.68	$91.91	$82.90
40 Bonds	**$90.72	$89.75	$85.87	$93.00
Bank clearings (000 omitted)	$47,038,000	$41,136,348	$48,031,000	$13,895,000
Commercial paper rate (N. Y., per cent)	4¼-4½	4½-4¾	4¼-4½	5½
*Commercial loans (000 omitted)	$8,700,249	$8,803,889	$8,316,552	
Federal reserve ratio, per cent	70	70	72.7	
Railroad earnings	†$115,000,000	$146,100,000	$107,153,000	$59,301,000
Stock sales, N. Y. stock exchange	41,891,000	31,182,620	43,264,500	6,924,000
Bond sales, par value	$311,340,000	$276,150,300	$265,402,600	$41,499,000

*Leading member banks Federal Reserve System.
**Jan. 24, 1927.
†November, 1926.

Commodity Prices

	Jan. 24, 1927	One month ago	One year ago	1913
U. S. Bureau of Labor Statistics	147	148.1	156.2	100
Bradstreet's index	138.7	138.3	151.6	100
Economist's (British)	146	154	156.4	100
Wheat, cash (bushel)	$1.39	$1.39	$1.82	92c
Corn, cash (bushel)	81c	81c	77c	51c
Petroleum, crude (Bbl.)	$3.15	$3.15	$3.65	$2.50

The Business Trend

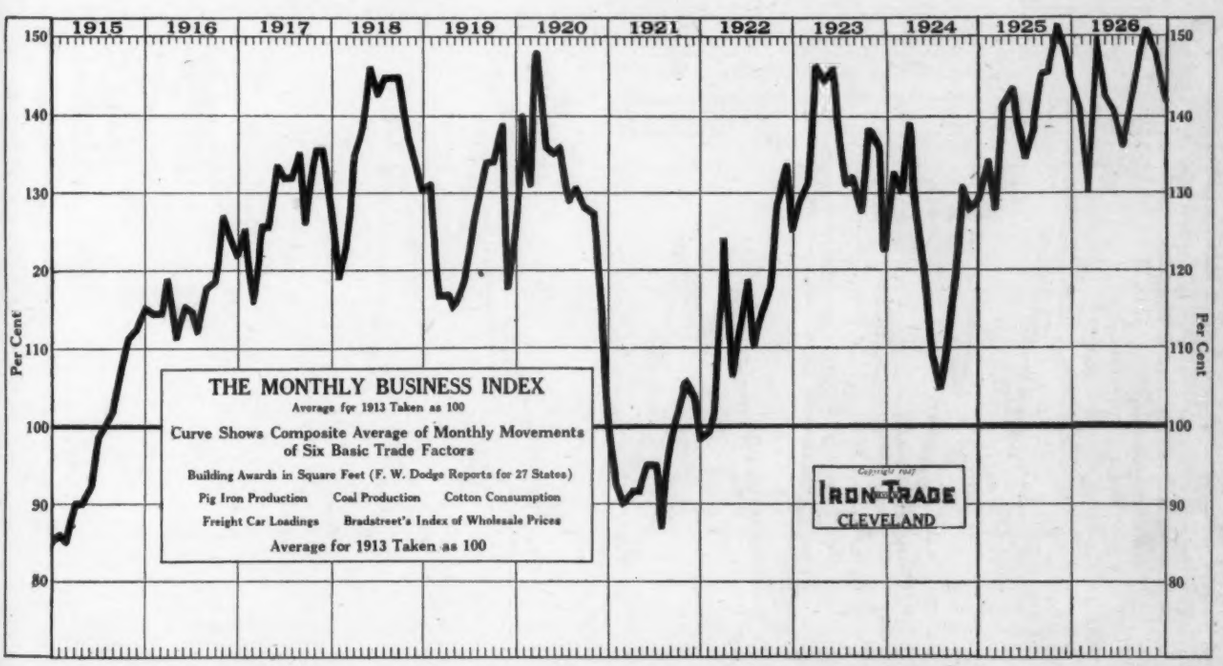


Automobile Production

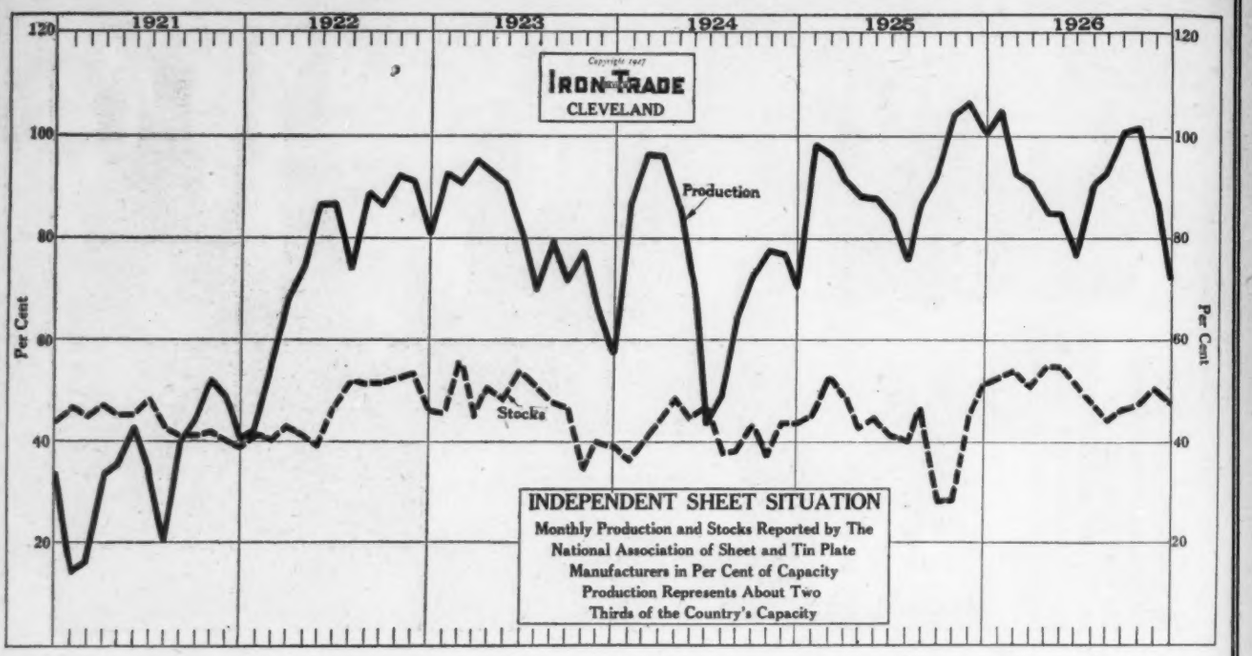
THE production of automobiles in 1926 reached a new high mark for all times with a total of 4,464,901 passenger cars and trucks. In 1925, the previous high year, the total was 4,336,271. There was a gain of more than 2 per cent for passenger cars and about 7 per cent for trucks. In December the production dropped to 173,000 cars and trucks or the lowest for any month since February, 1922. The present production is slowly increasing. Output should be further stimulated as spring approaches.

Business Index

SEASONAL relaxation of industry in December was reflected in IRON TRADE REVIEW Monthly Business Index. The number stood at 142.5, compared with 149.5 in November, 1925. Declines for the month were shown for pig iron production, for freight traffic, for coal production and for building construction. There was a small increase in cotton production, while wholesale commodity prices as reflected by Bradstreet's Index held practically unchanged during December.



The Business Trend

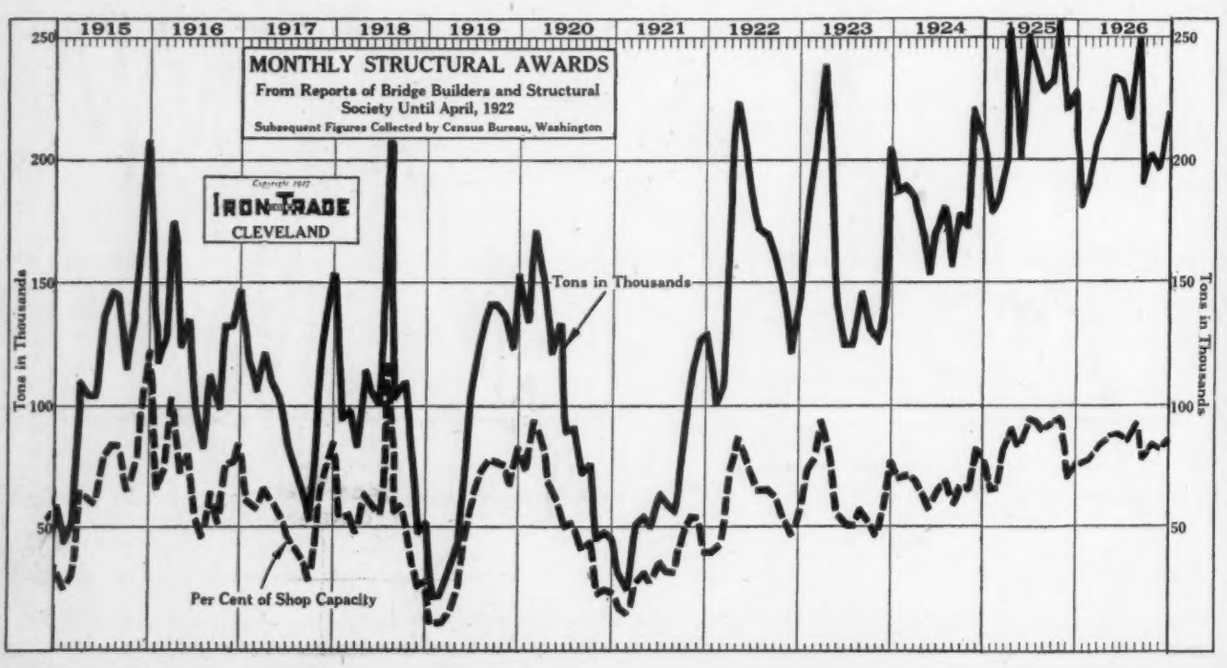


Sheet Situation

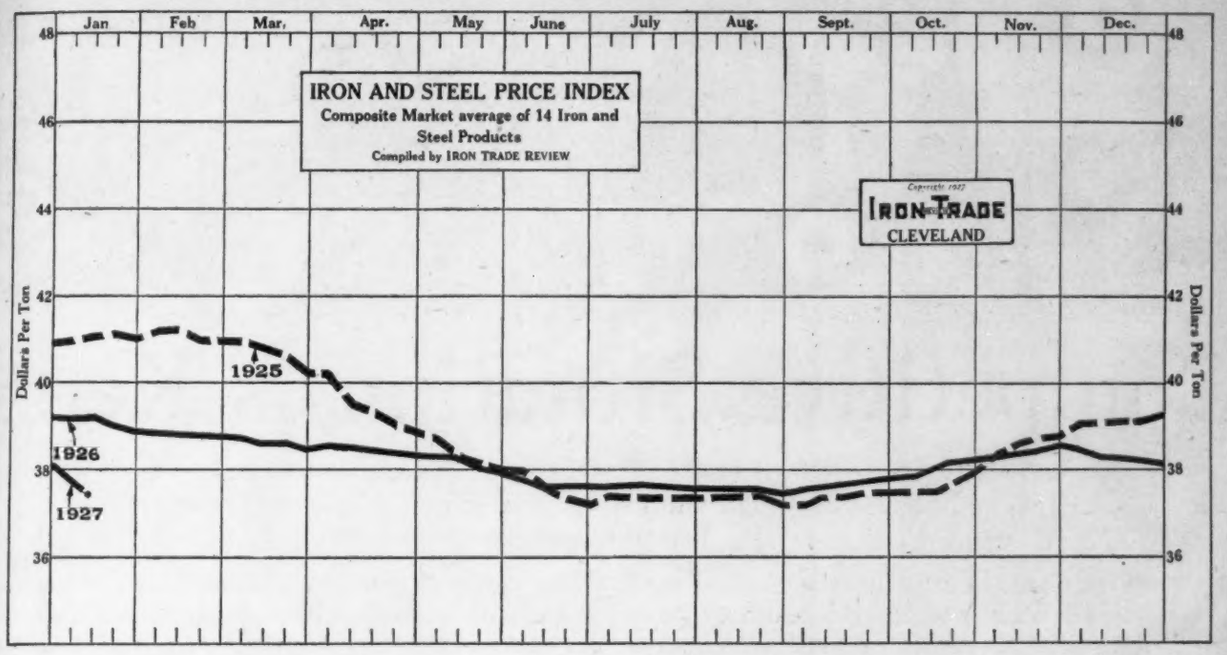
GAINS in sales of sheets during December were reported to the National Association of Sheet and Tin Plate Manufacturers. Production and shipments, however, declined. Production for the month stood at 72.3 per cent of capacity of mills, compared with 86.9 per cent one month before. Unfilled tonnage gained from 156 per cent of capacity in November to 160 per cent at the end of December. Stocks declined from 51 per cent of capacity to 48 per cent of capacity.

Structural Awards

THE computed tonnage of bookings of structural steel in 1926 was 2,517,150 tons, compared with shipments of 2,858,550 tons. This compared with bookings of 2,706,350 tons in 1925 and with 2,754,150 tons shipments in that year. In December bookings rose to 220,500 tons, the highest since last August, and the per cent of capacity engaged was 70 for the month. The present indications are for a fair demand for structural steel in the coming months as construction activities expand.



The Business Trend

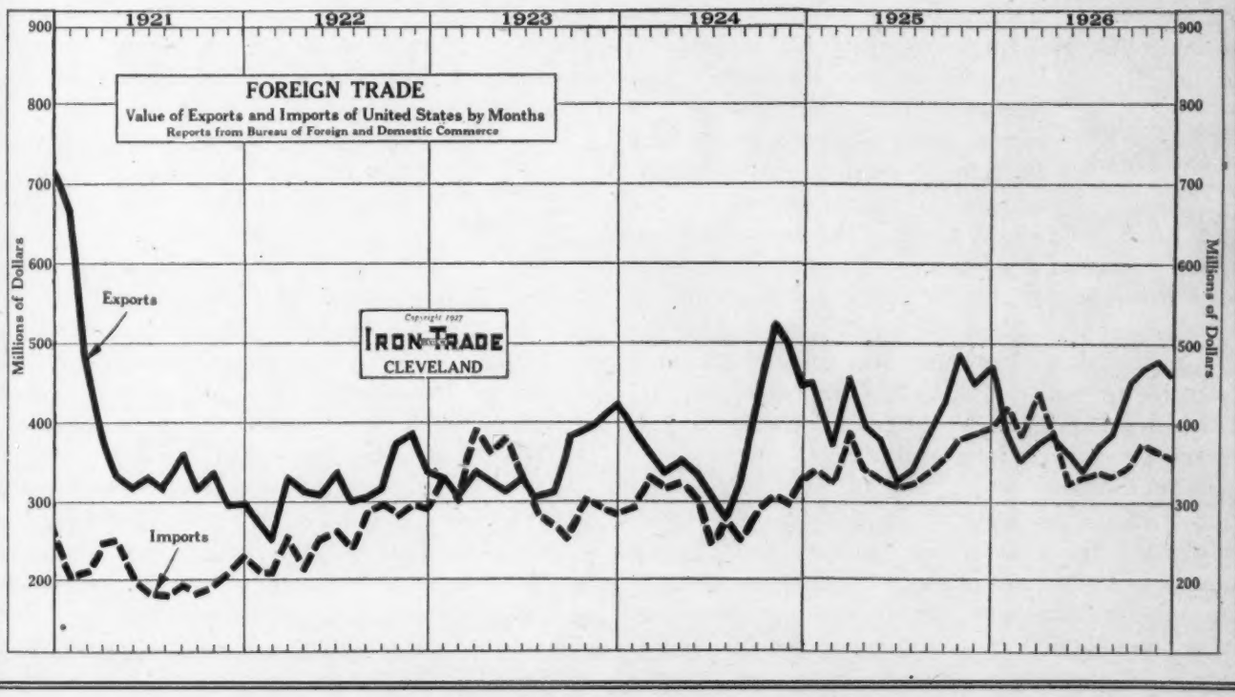


Steel Price Index

IRON TRADE REVIEW composite market average reveals that iron and steel prices are beginning the new year on a level below that of one year ago and of two years ago. The index in the third week of January stood at $37.47 a ton. This compared with $39.17 in January, 1926. In January, 1924, the index stood at over $43.00 a ton. The index is now at the lowest point touched at any time since October, 1925. Weakness in pig iron, sheets and in other products have combined to lower the general average.

Foreign Trade

EXPORTS of American merchandise in 1926 amounted to $4,810,411,000. This was a loss of about $100,000,000 from the total in 1925. Imports of $4,432,541,000 were greater by more than $200,000,000 than the total of 1925. The excess of exports for the year was $337,869,970. This compared with $683,258,248 in 1925. This year's excess of exports was the smallest of any year since 1923. December exports of $467,000,000, compared with imports of $361,000,000.



Competitive Situation Is Keen

Producers, Especially of Heavy Finished Steel, Wage Vigorous Campaign For Business —Bars and Shapes More Generally 1.90c, Pittsburg—Moderate Improvement Continues—Pig Iron Prices React to Coke Wage Cut

NOT in many months has the finished steel market been so highly competitive. Business not having come back as expected after the holidays, producers have gone after it in vigorous fashion and in a moderate way they have succeeded. The past week has seen further improvement in the general tone of the market, with new business and production on a somewhat higher plane. But casualties among prices continue.

As noted last week, soft steel bars and structural shapes are working down toward 1.90c, Pittsburgh. This price applies more generally to sizeable business and in some instances material shipped against 2.00c contracts is being billed at 1.90c. Sheet prices still are subjected to considerable strain, due to the continued aloofness of the automotive industry and the new competition of strip interests. Extras on some of the minor steel products are being waived.

Iron Follows Coke Down

Pig iron in the Pittsburgh and Mahoning valley districts has reversed itself following the sudden decision of Connellsville coke operators to reduce wages to the 1922 scale or to a $6 level. The immediate reaction has been a revision downward of furnace coke prices by 25 to 50 cents per ton and of foundry coke by 25 to 75 cents. No. 2 foundry iron in the Mahoning valley has gone off 25 cents a ton as a result. At Chicago malleable and No. 2 foundry iron are now quoted at $20.50 to $21, contrasted with a former flat $21.

Four thousand more freight cars have been placed, including 3000 by the Baltimore & Ohio, bringing total awards for January past 17,000 or nearly twice last January. Since the present car buying movement set in late in December more than 23,000 cars, requiring nearly 350,000 tons of iron and steel products, have been bought. Plate orders booked by Pittsburgh district makers this month will set a record for January due in a large measure to this activity in cars. Chicago district mills look for heavy specifying of car steel to develop in the next two weeks.

Improvement Is Seen

January is closing with evidences of improvement, especially in finished steel, discernible in practically all districts. Orders for car and structural steel booked last week by Chicago mills were the heaviest for any week since early October. The Illinois Steel Co. has blown in a stack at Gary, making 25 of the 36 steelworks stacks in the Chicago district active. Some sheet mills in the Mahoning valley have accumulated small backlogs and in many cases are starting up Sunday nights instead of Tuesday nights; the temptation to succumb to lower prices has been overcome by some mills. The steel ingot rate in the Mahoning valley is now close to 75 per cent. Steel corporation subsidiaries are operating at over 85 per cent.

Auto Output To Gain

Practically all automobile makers are expected to operate on better schedules in February. The Ford Motor Co. has gone from a three to a five-day week basis. Two General Motors units have also speeded up production. January output of passenger cars and trucks is not expected to vary much from the 173,415 of December. This total was a decisive reduction from the 265,688 of November and the 320,628 of December, 1925.

December exports of iron and steel totaling 198,189 tons failed by 20,000 tons to measure up to November but went ahead of last December by 55,000 tons. The 1926 total of exports stands at 2,167,048 tons, a decided gain over the 1,762,571 tons of 1925 but considerably short of many previous years. Imports of iron and steel in

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Jan. 26, 1927	Dec., 1926	Oct., 1926	Jan., 1926
PIG IRON				
Bessemer, valley, del., Pittsburgh	$21.26	21.86	20.86	22.76
Basic, valley	18.50	19.00	17.85	20.00
Basic, eastern del., eastern Pa.	21.25	22.25	21.00	22.75
*No. 2 foundry, del., Pittsburgh	20.01	20.76	20.11	22.26
No. 2 foundry, Chicago	20.50	21.00	21.00	23.00
*Southern No. 2, Birmingham	18.00	20.00	20.00	22.75
*Southern Ohio, No. 2 Ironton	20.00	20.00	20.00	21.40
**No. 2X, Virginia furnace	22.00	23.00	22.50	23.50
**No. 2X, eastern, del. Phila.	22.76	23.46	22.51	24.26
Malleable, valley	18.50	19.00	18.35	20.50
Malleable, Chicago	20.50	21.00	21.00	23.00
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	29.04
Gray forge, val., del., Pittsburgh	19.51	20.56	19.61	21.76
Ferromanganese, del., Pittsburgh	104.79	104.79	99.79	119.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	3.25	3.55	3.65	6.90
Connellsville, foundry, ovens	4.00	4.40	4.65	6.40
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.00	36.00	36.50
Sheet bars, open-hearth, Pittsburgh	36.00	36.00	36.00	36.50
Billets, open-hearth, Pittsburgh	35.00	35.00	35.00	35.50
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, Philadelphia	2.27	2.32	2.32	2.32
Iron bars, Philadelphia	2.22	2.22	2.22	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.00
Beams, Pittsburgh	1.90	2.00	2.00	1.90
Beams, Philadelphia	2.22	2.22	2.22	2.17
Beams, Chicago	2.10	2.10	2.10	2.10
Tank plates, Pittsburgh	1.90	1.90	1.90	1.90
Tank plates, Philadelphia	2.22	2.22	2.22	2.12
Tank plates, Chicago	2.10	2.10	2.10	2.10
Sheets, black, No. 24, Pittsburgh	2.90	3.05	3.05	3.35†
Sheets, blue anl., No. 10, Pittsburgh	2.20	2.35	2.35	2.50
Sheets, galvanized, No. 24, Pittsburgh	3.75	3.90	3.90	4.75†
Sheets, black, No. 24, Chicago	3.15	3.25	3.25	3.50†
Sheets, blue anl., No. 10, Chicago	2.35	2.55	2.55	2.65
Sheets, galvanized, No. 24, Chicago	4.00	4.10	4.10	4.75†
Wire nails, Pittsburgh	2.65	2.65	2.65	2.70
Wire nails, Chicago	2.70	2.70	2.70	2.70
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
†Based on No. 28 gage.				
OLD MATERIAL				
Heavy melting steel, Pittsburgh	17.00	17.00	17.00	18.75
Heavy melting steel, eastern Pa.	15.50	15.70	16.65	17.35
Heavy melting steel, Chicago	13.25	13.00	13.05	14.95
No. 1 wrought, eastern Pa.	17.00	17.00	17.00	18.35
No. 1 wrought, Chicago	14.50	13.75	14.50	15.00
Rails for rolling, Chicago	16.00	16.30	16.63	17.55

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Jan. 26, 1927)	**$37.38**
Last week (Jan. 19, 1927)	**37.47**
One month ago (December, 1926)	**38.22**
Three months ago (October, 1926)	**38.08**
One year ago (January, 1926)	**39.17**
Ten years ago (January, 1917)	**55.10**
Fourteen years ago (January, 1913)	**27.96**

December amounted to 75,559 tons against 81,258 tons in November and 98,400 tons in last December. Imports in 1926 reached 1,111,090 tons compared with 943,240 tons in 1925.

The IRON TRADE REVIEW composite of fourteen leading iron and steel products continues sensitive to falling prices, especially in pig iron, and this week is $37.38 compared with $37.47 last week and a December average of $38.22.

Late News Flashes

Steel Castings Bookings Increase

Washington, Jan. 25.—Bookings of steel castings in December totaled 85,685 tons, compared with 70,803 tons in November, according to reports to the department of commerce. December production totaled 81,556 tons, compared with 86,273 tons in November.

Illinois Steel Puts On Stack At Gary

Chicago, Jan. 25.—Illinois Steel Co. has blown in a blast furnace at its Gary works, giving it 16 active out of a total of 27 stacks. For the entire district, 25 out of 36 steel works stacks are now active. Mills are increasing their schedules for track fastening production.

Some Carnegie Operations Improve

Pittsburgh, Jan. 25.—Steelmaking operations continue at about 70 per cent of capacity. Improvement is noted at Homestead and Duquesne plants of Carnegie Steel Co., where all the mills are operating and tonnages were increased over the previous week. The Stewart Iron Co. blew in its furnace last Saturday but the Sharpsville Furnace Co., whose stack is being relined, will not resume until early March.

Dumping Order Is Expected

Washington, Jan. 25.—The customs service, treasury department, has found there is dumping on the American market of pig iron from Germany and a dumping order has been prepared and is likely to be signed at any time by Secretary Mellon. The secretary also has on his desk for final signature a treasury decision informing collectors at the various ports that they are not to collect any countervailing duty on iron or steel products from Germany.

Valley Ingot Rate Slightly Higher

Youngstown, O., Jan. 25.—Independent production of steel ingots in the district has increased to about 75 per cent, with Carnegie Steel Co. at about 80 per cent. Independent open hearths are 37 active out of a total of 53. Total of 96 sheet mills is active out of 127 independent units. Trumbull Steel Co. with its diversified lines is operating 100 per cent this week, Youngstown Sheet & Tube Co. about 65 to 70 per cent, Sharon Steel Hoop Co. 90 per cent and the Republic Iron & Steel Co. 65 per cent.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	40.30
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00

SLABS

Pittsburgh	$35.00
Youngstown	35.00

WIRE RODS

Pittsburgh	45.00
Cleveland	45.00
Chicago	46.00

Standard extras, $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.12c to 2.32c
New York	2.19c to 2.34c
Chicago	2.10c
Cleveland	2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.90c
Philadelphia	2.22c
New York	2.24c
Chicago	2.10c
Cleveland	2.09c
Birmingham	2.05c to 2.15c

Iron and Steel Bars

Pittsburgh, soft steel	1.90c to 2.00c
Pittsburgh, cold finishing	2.15c
Pittsburgh, forging quality	2.15c
Philadelphia, soft steel	2.22c to 2.32c
New York, soft steel	2.24c to 2.34c
Chicago, soft steel	2.10c
*Cleveland, soft steel	1.90c to 2.09c
Birmingham, soft steel	2.05c to 2.15c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c to 2.10c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.90c to 2.00c
Mill, rail steel	1.80c
Philadelphia, common iron	2.22c
New York, common iron	2.24c
Chicago, common iron	2.00c

*The lower prices apply to a limited range of forms and sizes made locally.

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.30c to 2.40c
Bands, Pittsburgh, 6 inches and under	2.30c to 2.40c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh, stamping quality, over 6 in.	2.10c to 2.20c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	3.00c to 3.40c
Worcester Mass	3.90c
Chicago	3.30c to 3.70c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled, Pittsburgh, Chicago carloads	2.40c
Less carload	2.50c to 2.65c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—	
2300 (3½ per cent nickel	4.35c to 4.50c
3100 (Nickel chromium)	3.40c to 3.50c
6100 (Chrome vanadium)	4.25c to 4.30c
6100 (Chrome vanad, spring)	3.80c
9250 Silico-mang. spring)	3.20c to 3.25c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	23.00 to 25.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c to 2.90c
Spikes, small railroad, 7-16-inch and smaller, Pitts	2.90c to 3.00c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.90c
Track bolts, Pitts. standard	3.90c to 4.25c
Track bolts, Chicago	3.90c
Tie plates, Chicago, Pittsburgh	2.35c

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra F.o.b. Cleveland and Pittsburgh base.

Wire nails	2.65c
Galvanized nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 lb. kegs, subject to Sept. 1, 1926, extra card over wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.90c to 3.00c
No. 24, Philadelphia, delivered	3.12c to 3.22c
No. 24, Gary, Indiana Harbor	3.10c to 3.20c
No. 24, Chicago, delivered	3.15c to 3.25c

TIN MILL, BLACK

No. 28, Pittsburgh	3.15c to 3.25c
No. 28, Gary base	3.25c to 3.35c

GALVANIZED

No. 24, Pittsburgh, base	3.75c to 3.85c
No. 24, Philadelphia, delivered	4.07c to 4.17c
No. 24, Gary, Indiana Harbor	3.95c to 4.05c
No. 24, Chicago, delivered	4.00c to 4.10c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.20c to 2.30c
No. 10, Philadelphia, delivered	2.52c to 2.62c
No. 10, Gary, Indiana Harbor	2.30c to 2.40c
No. 10, Chicago, delivered	2.35c to 2.45c

AUTOMOBILE SHEETS

No. 20, Pittsburgh, base	4.15c to 4.25c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, No. 24, base	4.30

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del. 2½ points less.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	68⅛
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled 3¼ to 3½-inch	46 off

Further discounts of seven 5 per cents allowed for carloads and six 5 per cents for less-carload, on lap welded steel. On seamless hot rolled several more 5 per cents allowed.

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Over 24-inch, Chicago	45.20
Four-inch, Birmingham	40.00 to 41.00
Six-inch and over, Birming'm	36.00 to 37.00
Four-inch, New York	53.50 to 55.60
Six-inch and over, New York	49.50 to 51.60
Standard fittings, Bir. base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $26; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Prices named are for l. c. l. lots. Carloads take an extra 5 per cent off on carriage, machine and plow bolts and lag screws.

*Hot pressed square tapped or blank	$4.00 off list
*Ditto, hexagon	$4.40 off list
*Cold punched square or hexagon blank	$4.10 off list
*Ditto tapped	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

Add 25 cents per cwt. on cold punched and hot pressed nuts.

CARRIAGE BOLTS

(⅜ x 6-inch, smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
Tap bolts	30 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off

Stove bolts, 80, 10 and 5 off in bulk. In packages, 80, 10 and 5 plus 2½ off.

Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000 f.o.b. maker's plant, frt. allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	28.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.30c to 2.60c
Structural rivets, c.l., Chi	2.60c to 2.75c
**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland, 70, 10 and 5 to 70 and 10 off.	
**Rivets, 7/16-inch and smaller, Chicago	70, 10 and 5 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist	$6.40 to 6.50 off
Wrought c.l., Pitts. dist	6.75 to 6.50 off
Lock washers, f.o.b. factory	85 to 90 off

Pig Iron

Prices Easier in Valley, Chicago and Buffalo Districts—Market Is Moderately Active on Lower Price Level

THE reduction in Connellsville coal mine and coke plant wage rates, with subsequent reduction in prices of coke have led pig iron melters to expect lower quotations. Blast furnace interests say such reductions have been discounted, but on some pig iron business booked during the week the price was equivalent to $18.25, base, valley, 25 cents under the previous minimum. Chicago furnaces have reduced their price 50 cents, now quoting $20.50 to $21, base. Buffalo furnaces are offering iron at eastern points at $18. Tonnages generally are moderate in size. A transaction of interest is the sale of 5000 tons of copper bearing low phosphorus iron by the Bethlehem Steel Co., to the Worcester plant of the American Steel & Wire Co.

PITTSBURGH, Jan. 25.—Pig iron buyers are deferring purchases expecting the fuel market will reflect the coal and coke wage reduction made recently in the Connellsville district. Pig iron producers, however, claim previously quoted levels have discounted those advantages. One sale of 300 tons of No. 3 iron and 300 tons of No. 2X are quoted at $17.25 and $18.75, valley, respectively, equivalent to $18.25 base, representing a decline of 25 cents. Other sales of small lots of the base grade are quoted at $18.50, valley. A few producers are maintaining that price as minimum. The Titusville Iron Works Co. wants 500 tons of two grades of foundry iron. Another nearby user wants 500 tons. Larger tonnages are lacking, due to the fact that radiator and sanitary ware manufacturers are protected for the first quarter. Demand for steelmaking iron is dull, although a nearby sheetmaker is understood to have purchased a tonnage of basic below $18.50, valley, equivalent. All valley producers are maintaining that level. Bessemer is bringing $19.50 for small filling-in tonnages. Small inquiries for low phosphorus iron are more numerous, and the valley producers now in blast are quoting $28 valley. The Union Steel Casting Co., and nearby castings producers, roll foundries and others want small lots.

Boston, Jan. 25.—Keen competition is keeping pig iron prices down in New England. Several recent sales of 300 to 500 tons which were open to competitive bidding were placed at $18, Buffalo, equivalent to $22.91 delivered. The Everett, Mass., furnace is quoting $21, furnace, for No. 2X iron (2.25 to 2.75 silicon). Birmingham iron is reaching the district at $24.91 f. o. b. Boston and a moderate tonnage has been placed for mixture purposes. General pig iron demand is not urgent but sales are gradually increasing. The Everett furnace is reported to have piled 10,000 tons in the past two months.

New York, Jan. 25.—The largest transaction in pig iron in this territory involves 5000 tons of copper bearing, low phosphorus iron to be shipped by Bethlehem Steel Co. to Worcester, Mass., plant of American Steel & Wire Co. Ingersoll-Rand Co. placed 2000 tons of 2.75 to 3.25 silicon foundry iron for shipment to its Phillipsburg, N. J., plant, understood to have gone to a Buffalo maker at $18.50, Buffalo. Inquiries from plants in this territory aggregate about 2000 tons. In addition, prices are being taken for 5000 to 6000 tons to be bought here for shipment elsewhere. Eastern Pennsylvania foundry continues $21.50 to $22, base, furnace. Buffalo foundry is $18 to $19, base, Buffalo for shipment to the East. Several thousand tons of Dutch foundry iron high in silicon has been sold here for delivery over first half. Most of this business brought a flat price of $23, duty paid, tidewater, but some went lower. It is understood the Dutch quota for first quarter shipment to this country has been nearly sold out.

Philadelphia, Jan. 25.—It is estimated the United States Cast Iron Pipe & Foundry Co. bought 75,000 tons of foundry iron during the last ten days for various plants. Most of the tonnage went to Birmingham makers. Included in the total was 7500 tons for barge shipment from the Mystic furnace, Everett, Mass., to Burlington, N. J. Several lots also were placed recently with eastern Pennsylvania furnaces for Burlington. Recent basic business went at $21.25 to $21.50, delivered, instead of $21 to $21.25 as reported.

Buffalo, Jan. 25.—Pig iron producers admit they are meeting competition within and outside the district. As low as $18 is quoted on outside inquiry and $18.50 on district inquiry. Full differentials are not being obtained in all instances, but reports of eastern sales of high silicon iron at prices figuring back to $18.50, Buffalo, are denied.

Cleveland, Jan. 25.—Rumors of low prices done by a Cleveland furnace on recent business in southern Ohio is leading other melters in Cleveland and environs to seek proportionate figures, though the market here appears to be holding at $19, base, furnace, for local delivery, and generally $18 for outside shipment. A Cleveland furnace reported by a buyer in southern Ohio to have taken several thousand tons at around $17.50, Cleveland, and to have waived silicon differentials so that the base price figured to around $17 denies having taken any portion of the order. Another local furnace was given a chance to compete against the lower mentioned figures, and declined. Demand for pig iron is slightly more active, motor car foundries and radiator manufacturers increasing consumption. Inquiry totals around 12,000 tons, including 2500 tons

(*Concluded on Page* 293)

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$19.50
Bessemer, del. Pittsburgh	21.26
Basic, valley	18.50
Basic, del. Pittsburgh	20.26
Basic, Buffalo	18.00 to 18.50
Basic, del., eastern Pa.	21.25 to 21.50
Malleable, valley	18.50
Malleable, del. Pittsburgh	20.26
Malleable, del. Cleveland	19.50
Malleable, Chicago	20.50 to 21.00
Malleable, Buffalo	18.00 to 19.00
Malleable, del., eastern Pa.	22.75 to 23.25
No. 1X Eastern del., Phila.	23.26 to 24.26
No. IX, Buffalo	19.50 to 20.00
No. 1 foundry, Chicago	21.00 to 21.50
No. 2 foundry, valley	18.25 to 18.50
No. 2 foundry del. Pittsburgh	20.01 to 20.26
No. 2 foundry, Buffalo	18.00 to 19.00
No. 2 foundry, Everett, Mass.	21.00 to 21.50
No. 2 foundry, Chicago	20.50 to 21.00
No. 2 foundry, Granite City	21.00 to 21.50
No. 2 foundry, Ironton	20.00
No. 2 foundry, del., Cleveland	19.50
No. 2 foundry, del., Phila.	22.26 to 22.76
No. 2 foundry, N. J., tidewater	21.28 to 24.76
No 2X, eastern del., Phila.	22.76 to 23.26
No. 2X east N. J., tidewater	21.78 to 25.26
No. 2X, foundry, Buffalo	19.00 to 19.50
No. 2X, eastern del., Boston	25.65 to 26.15
No. 2X, Buffalo, del., Boston	24.16 to 24.66
Continental foundry f.o.b. Boston	21.50 to 22.50
No. 2 Alabama, Birmingham	18.00
No. 2 Alabama, del. Cincinnati	21.69
No. 2 Tenn., Birmingham base	18.00
No. 2 Tenn., del. Cincinnati	21.69
No. 2 Alabama, del. Philadelphia	24.01
No. 2 Alabama, del. Chicago	24.01
No. 2 Alabama, del. Chicago (barge and rail)	23.18
No. 2 Alabama, del. Boston (rail and water)	25.41
No. Alabama, del. Cleveland	24.01
No. 2 Alabama, del. St. Louis	22.42
No. 2X Virginia	22.00
No. 2X, Virginia, del. Phila.	27.17
No. 2X, Virginia, del. Jers. City	27.54
No. 2X, Virginia, del., Boston	27.92
Gray forge, eastern Pa.	21.50
Gray forge, val. del. Pitts.	19.51 to 19.76
Low phos., standard, valley	28.00
Low phos., standard, Phila.	25.76 to 29.79
Low phos., Lebanon	25.00
Charcoal, Birmingham	29.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $25.50; 6 per cent $26.50; 7 per cent $27.50; 8 per cent $28.50; 9 per cent $30.00; 10 per cent $32.00; 11 per cent $34.00; 12 per cent $36.000; 13 per cent $38.00; and 14 per cent $40.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $34.00; 11 per cent $36.00; 12 per cent $36.00; 13 per cent $38.00; and 14 per cent $42.00; 15 per cent $45.00; 16 per cent $47.00; 17 per cent $49.50.

*Duty paid, delivered Philadelphia consumers. Prices are f.o.b. furnace except where stated otherwise.

Coke

Connellsville Coal and Coke Wages Reduced—Prices Weaken —Some Curtailment Indicated

REDUCTION of coal mine and coke plant wages by some leading operators in the Connellsville district, 20 per cent, back to the 1922 scale is followed with lower quotations on coke. The furnace grade is down 25 to 50 cents, and foundry, 25 to 75 cents. Some buyers are withdrawing inquiries; curtailment of output is indicated.

Pittsburgh, Jan. 25.—The Connellsville beehive coke market is in process of readjustment following the posting yesterday of a $6 a day labor scale, the same as inaugurated last Friday by the Rainey interests and previously by the Pittsburgh Coal Co. The companies that posted notices yesterday include the Hillman Coal & Coke Co. and the Washington Coal & Coke Co. All the workers continue to report. Some coal and coke buyers are withdrawing inquiries until the market finds more definite levels. Certain producers now regret the precipitate action believing they could just as well have gone to the 1917 scale of $5 per day. In the meantime contracts are being adjusted to 35 cents to 50 cents depending on conditions of different plants. One merchant blast furnace paying $4.37 on a high wage rate now is being invoiced at about $4. Some quotations of $4 are out on future supplies. Other makers will take orders for extended delivery at $3.50, and one or two will accept business until April 1 at $3.25 and $3.35. Apparently plenty of coke is available for prompt delivery, but there are no takers. Inquiries are fewer and it is understood some producers are planning an early curtailment of operations and also reduction of mining. Foundry coke prices are weaker by 25 cents despite the presence of more inquiries involving five to ten car loads. While some standard 72-hour coke was sold off the truck at $3.75, that represents the distress quotation. The usual price is $4 to $4.75. One sale of ten car loads brought $4.50 from a broker, another four carloads were sold direct to the consumer at $4.75.

Production of coke in the Connellsville region for the week ended Jan. 15 was 134,780 tons, compared with 126,300 tons in the preceding week, according to the *Connellsville Courier*.

Boston, Jan. 25.—A lower by-product coke price has caused some increase in buying. Requests for shipment are steady. The rate of foundry melt has increased since Jan. 1. The January contract price is $13.

Detroit, Jan. 25.—Current demand for foundry coke is below normal. Little improvement is expected until after Feb. 1 when activities among the automobile manufacturers and local foundries are expected to increase. The price is unchanged at $10.50, ovens.

Chicago, Jan. 25.—Specifications for by-product coke are coming in steadily, but they have shown no increase since late December. Sellers continue to obtain 50 cents a ton above the contract price for spot business, which is light.

St. Louis, Jan. 25.—Demand for metallurgical coke is of a routine character. Requests for delayed shipments are coming from the stove and job foundries. Offerings are freer than in some time, and while quotations remain unchanged, the tone of the market is not as firm as heretofore.

Birmingham, Ala., Jan. 25.—Continued selling of by-product foundry coke for delivery during the first half is reported. Quotations are firm at $5.50, with $6 being asked for quick delivery or for small lots. One hundred beehive coke ovens are in operation in this state and $6 per ton is asked for the product.

Coke Prices

Beehive, Ovens

Prices per net ton	
Connellsville furnace	$3.25 to 4.00
Connellsville foundry	4.00 to 4.75
New River foundry	7.00 to 9.00
New River furnace	6.00
Wise county furnace	5.50
Wise county foundry	6.00
Alabama foundry	6.00

By-Product

Foundry, Newark, N. J.: del.	9.59 to 10.77
Foundry, Chicago, ovens	9.75
Foundry, New England, del.	13.00
Foundry, St. Louis	10.50
Foundry, Granite City, Ill.	10.50
Foundry, Birmingham	5.50 to 6.00
Foundry Indianapolis, del.	10.25
Foundry, Ashland, Ky.	8.00
Foundry, Portsmouth, O.	8.00

Ferroalloys

Japan Increases Ferromanganese Order—Markets Steady

New York, Jan. 25.—An additional 1000 tons of ferromanganese, making a total of 2000 tons, has been booked by Electro Metallurgical Sales Corp. for shipment to Imperial Steel Works of Japan. The metal will be shipped from Norway. Business is quiet. Rumors have pervaded the trade to the effect that an advance from the present price of $100, duty paid, tidewater, will be made effective Feb. 1 but so far there has not been any verification. New Business in spiegeleisen involved a few carloads at $37, furnace for the 19 to 21 per cent grade. Deliveries of spiegeleisen continue large.

Pittsburgh, Jan. 25.—For several weeks new inquiries and new business have been lacking in ferroalloys since fully 95 per cent of the ferromanganese consuming trade is committed. Activity manifests itself in specifications against contracts. It appears that only a few customers are to be heard from, one producer stating that out of four users, for instance, one will purchase in the spot market; another has enough for some time, and the remaining two will act soon. The $100, Atlantic seaboard, base price, is not interfered with in any way, English makers disposing of their product at approximately $17 more per ton at home and in Europe than they are quoting here, namely $100, c.i.f. Atlantic seaboard. Spiegeleisen situation still is tight. Domestic makers have all their output obligated and are easily able to sell any tonnage not specified out on monthly quotas. The 19 to 21 per cent material is held at $37, furnace, in single carloads. The Donner Steel Co. inquired recently for a tonnage but decided to defer its purchase. Specifications against 50 per cent as well as the lower grade ferrosilicon are coming in well.

Coast Business Light

San Francisco, Jan. 25. (*By wire*)—Because the steel conference at Del Monte held most of the attention in the Pacific Coast iron and steel market the past week, new business was light. Prices in general are unchanged. Buying of pig iron and coke has been confined to small lots. Plate inquiries show slight improvement. The Standard Oil Co. has placed about 286,000 base boxes of tin plate with unstated eastern producers.

Package Machinery Co., Springfield, Mass., finds 1926 the best year in its history, according to T. L. Jefferson, chairman of the board. The company recently distributed bonuses totaling about $6000 among its employes.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater	$100.00
Ferromanganese delivered Pittsburgh	104.79
Spiegeleisen 19 to 21 per cent domestic furnace	37.00
Ferrosilicon, 50 per cent, freight allowed	85.00 to 87.50
Ferrotungsten standard, per pound contained	1.05
Ferrochrome, 60 to 70 chromium, 4 to 6 carbon, cents per pound contained, delivered	11.50
Ferrovanadium, 30 to 40 per cent, per pound estimated, according to analysis	3.15 to 3.65
Ferro-carbon-titanium, car lots, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent materials)	122.50

†Duty paid.

Plates

Pittsburgh Mills Having Best January Business on Record for the Month

JANUARY orders for plates are likely to be the largest on record for the month, in the experience of some Pittsburgh district mills. Last November and December orders are being exceeded by 15 to 25 per cent. Miscellaneous requirements make up the bulk of current business. The general price is 1.90c, although 1.85c, Pittsburgh, was done a week ago on 2000 tons.

PLATE PRICES, PAGE 278

New York, Jan. 25.—Plate contracting for the first quarter has been considerably less than it was for the preceding quarter. Some consumers which placed contracts covering the fourth quarter now are buying hand to mouth. Demand keeps up well. Eastern mills continue able to operate at 50 to 60 per cent of capacity. The 1.90c, base, Pittsburgh, price continues firm on general business. A substantial tonnage is involved in three carfloats placed with Federal Shipbuilding Co. by the Delaware, Lackawanna & Western railroad. The 3000 tons of steel will be furnished by Carnegie Steel Co. L. Bamberger & Co.'s new building in Newark will require unusually heavy foundation plates, 9 inches thick and 10 x 10 feet square. Standard Oil Co. of New Jersey is in the market for 175 tons of plates for tanks at Charleston, S. C.

Boston, Jan. 25.—Boiler makers report quiet conditions, and plate demand generally is far from satisfactory. The price. however, holds at 1.90c, Pittsburgh.

Pittsburgh, Jan. 25.—Some attractive plate orders for varied purposes have helped swell the tonnage placed here. Orders in January promise to exceed the previous high record for the month. Totals are higher by a margin of 15 to 25 per cent than either November or December. This week's awards from fabricating shops involving plate tonnage are few but several are said to be in the formative stage and will be closed at an early date. The 1.90c price is holding, buyers of ordinary tonnage being unable to duplicate the 1.85c figure applying on the 2000-ton lot for the Norfolk & Western railroad placed last week.

Cleveland, Jan. 25.—Sellers of plate report a marked increase in inquiry and a fair gain in orders. With practically every seller, January business has topped December, and with some this month will compare favorably with last January. Plates continue to be quoted at 1.90c, Pittsburgh, or 2.09c, Cleveland, for general business.

Chicago, Jan. 25.—Specifications from car building shops have failed at this time to become of such importance as to stimulate the plate market, but a fair amount of oil tankage business from the Seminole field in Oklahoma, and other points in the Southwest is being placed. Oil tankage business during the week was 6000 to 7000 tons. Little oil tankage business is on inquiry now.

Philadelphia, Jan. 25.—Plate demand is running behind that of December, but the daily rate is improving. Mill operations have been 50 to 60 per cent in the East since the resumption following the holidays. The price is firm at 1.90c, Pittsburgh.

CONTRACTS PLACED

750 tons, barges for Iron City Sand & Gravel Co., to Jones & Laughlin Steel Corp.
350 tons, plate work including furnace shed, etc., for Diamond Alkali Co., Alkali, O.
280 tons, and elevated tank for Westmoreland Water Co., Westmoreland, Pa., 70 tons, to Pittsburgh-Des Moines Steel Co.
200 tons, fire boat, Seattle, to Pacific Coast Engineering Co.
100 tons, pipe line for Trace, Calif., to Pacific Coast Engineering Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

1400 tons, pipe line for Spokane, Wash.; bids in Feb. 3.
720 tons, pipe line in Washington; United States bureau of reclamation in Denver, taking bids.
235 tons, penstocks on Bull Run dam, near Portland, Oreg.; bids in Feb. 9.

Fluorspar Prices Shown

New York, Jan. 25.—Scattered sales of foreign fluorspar aggregating about 1500 tons have been sold the past week. Prices on this business show the market for the 85 and 5 per cent grade is $16.75 to $17.25, duty paid, tidewater, per net ton. Some inquiry has appeared for acid spar. The asking price on this material is $30 to $31, per net ton, duty paid, for spar containing 98 per cent calcium fluoride and 1 per cent silica, and in lump or gravel form.

Semifinished

Buyers Moving Slowly—Some Users Have Not Yet Placed February Billet Needs

A SLOWER rate of hand-to-mouth buying is reported in the market for sheet bars, billets and slabs. Some large users of billets have not taken any action as yet on February requirements. Lower prices have not developed definitely. Northern Ohio mills quoted $34.50, mill, on sheet bars for shipment where prices were equivalent to $36, Youngstown or Pittsburgh.

SEMIFINISHED STEEL PRICES, PAGE 278

Pittsburgh, Jan. 25.—Semifinished steel remains dull. Billet buyers purchasing monthly have not yet closed on February requirements, and in some cases inquiries have not been issued. Reports of a $34.50 price on sheet bars are not confirmed here outside of the fact some northern Ohio mills quoted that figure as a mill price for delivery into Youngstown or Pittsburgh, which represented $36, Youngstown or Pittsburgh. The 4 x 4-inch rerolling billets are quoted at $35 and sold at the same time at a slightly lower figure since they had been turned back on the mill's hands after rejection. Forging billet users continue to specify against $40 quarterly arrangements and wire rod buyers are fairly active on $45 contracts, Skelp is quiet at 1.90c.

Youngstown, O., Jan. 25.—Mills producing sheet bars and billets still lack contracts for first quarter delivery, but continue to make shipments to consuming interests on the last quarter price basis. These are $36 for sheet bars and $35 for billets, Pittsburgh and Youngstown bases. However, from some outside points slightly lower equivalent quotations have appeared in the valleys.

Melt Reduced Slightly

December operations by melters represented in the Ohio State Foundrymen's association were 82.4 per cent of normal, according to A. J. Tuscany, secretary. November operations were 86 per cent of normal, and December, 1925, 78 per cent. Stocks on hand increased from 82 per cent of normal in November to 99 per cent in December.

Endows Miami Hospital

Chicago, Jan. 25.—The sum of $500,000 from the estate of the late James Deering, of Chicago, farm implement manufacturer, has been transferred to a trust company in Miami, Fla., the interest to be used for a Deering ward in the Jackson Memorial hospital in Miami.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	13.00 to 13.50
Boston (dealers)	10.50 to 11.00
Buffalo, No. 1	16.50 to 17.00
Buffalo, No. 2	15.00 to 15.50
Chicago	13.25 to 13.75
Cincinnati (dealers)	12.50 to 13.00
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	14.25 to 14.50
Detroit	12.50 to 13.00
Eastern Pennsylvania	15.00 to 15.75
Bethlehem delivery	15.00
New York (dealers) (railroad)	11.50 to 12.35
New York (dealers) (yard)	8.50 to 9.50
Pittsburgh No. 1	16.00 to 16.50
St. Louis	13.00 to 13.50
Valleys, No. 1	16.50

COMPRESSED SHEETS

Buffalo	15.00 to 15.50
Chicago	11.75 to 12.25
Cleveland	13.00 to 13.50
Detroit	11.50 to 12.00
Pittsburgh	15.00 to 15.50
Valleys	15.25 to 15.50

BUNDLED SHEETS

Buffalo	11.00 to 11.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	12.25 to 12.75
Eastern Pennsylvania	12.50 to 13.00
Pittsburgh	14.00 to 14.50
St. Louis	9.00 to 9.50

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	6.00 to 6.50
Detroit	8.00 to 8.50
St. Louis	9.00 to 9.50

STEEL RAILS, SHORT

Birmingham	12.50 to 13.50
Buffalo	17.00 to 17.50
Chicago	16.75 to 17.00
Cincinnati (dealers)	17.00 to 17.50
Cleveland (over 6 ft.)	14.75 to 15.00
Detroit	13.00 to 14.00
St. Louis	16.00 to 16.50

STOVE PLATE

Birmingham	14.00 to 15.00
Boston (consumers)	13.00 to 13.50
Buffalo	14.50 to 15.00
Chicago (net)	14.00 to 14.50
Cincinnati (dealers) (net)	8.50 to 9.00
Cleveland	11.00 to 11.50
Detroit (net tons)	11.50 to 12.00
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.50 to 10.50
Pittsburgh	13.00 to 13.50
St. Louis	15.25 to 15.75

LOW PHOSPHORUS

Buffalo, billet and bloom crops	18.00 to 18.50
Cincinnati (dealers)	16.50 to 17.00
Eastern Pennsylvania	19.00 to 20.00
Pitts. billet and bloom crops	20.00 to 20.50
Cleveland, billet and bloom crops	17.50

SHOVELING STEEL

Chicago	13.25 to 13.75
Pittsburgh	12.50 to 13.00
St. Louis	13.00 to 13.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	16.00 to 16.50
Eastern Pennsylvania	18.00 to 18.50
Pittsburgh	18.50 to 19.00
St. Louis	14.50 to 15.00

FROGS, SWITCHES, GUARDS

Chicago	15.00 to 15.50
St. Louis	14.75 to 15.25

ANGLE BARS—STEEL

Buffalo	15.25 to 15.75
Chicago	15.25 to 15.75
St. Louis	14.50 to 15.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	12.00 to 12.50
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	15.00 to 15.50
Chicago, No. 1	14.50 to 14.75
Chicago, No. 2	13.25 to 13.75
Cincinnati, No. 1 (dealers)	11.50 to 12.00
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	17.00 to 17.50
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	13.00 to 13.50
Pittsburgh, No. 2	16.50 to 17.00
St. Louis, No. 1	12.00 to 12.50
St. Louis, No. 2	13.00 to 13.50

WROUGHT PIPE

Boston (dealers)	9.00 to 9.50
Eastern Pennsylvania	14.00 to 14.50
Buffalo	15.00 to 15.50
New York (dealers)	9.75 to 10.25

YARD WROUGHT

Boston	11.00 to 11.50
Eastern Pennsylvania	16.50 to 17.00

BUSHELING

Buffalo	15.00 to 15.50
Chicago, No. 1	11.75 to 12.25
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	8.00 to 8.50
Cleveland, No. 1 (new)	13.00 to 13.50
Cleveland, No. 2	11.25 to 11.50
Pittsburgh, No. 1	14.25 to 14.75
St. Louis, No. 1	11.75 to 12.25

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston	7.50 to 8.00
Buffalo	10.00 to 10.50
Chicago	7.25 to 7.75
Cincinnati (dealers)	6.00 to 6.50
Cleveland	9.50 to 10.00
Detroit	7.75 to 8.25
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.75 to 9.25
Pittsburgh	12.00 to 12.50
St. Louis	7.00 to 7.50

CAST IRON BORINGS

Birmingham (chemical)	15.50 to 16.00
Birmingham (plain)	8.00 to 8.50
Boston Chemical	10.00 to 10.50
Boston (dealers)	8.00 to 8.50
Buffalo	12.00 to 12.50
Chicago	10.50 to 10.75
Cincinnati (dealers)	6.00 to 6.50
Cleveland	11.25 to 11.50
Detroit	9.25 to 9.75
Eastern Pennsylvania	13.00 to 13.50
Eastern Pennsylvania (chem.)	15.50 to 16.00
New York (dealers)	8.75 to 9.25
Pittsburgh	12.50 to 13.00
St. Louis	10.25 to 10.75
Valleys	13.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	7.50 to 8.00
Buffalo	12.75 to 13.25
Cincinnati (dealers)	5.50 to 6.00
Cleveland	11.00 to 11.50
Detroit	9.25 to 9.75
Eastern Pennsylvania	12.00 to 13.00
New York (dealers)	8.75 to 9.25
Pittsburgh	12.50 to 13.00

PIPES AND FLUES

Chicago (net)	8.25 to 8.75
Cincinnati (dealers)	7.50 to 8.00
St. Louis	10.00 to 10.50

RAILROAD GRATE BARS

Buffalo	13.00 to 13.50
Chicago (net)	13.75 to 14.25
Cleveland	12.00 to 12.50
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.50 to 10.50
St. Louis	14.00 to 14.50

FORGE FLASHINGS

Boston (dealers)	8.00 to 8.50
Buffalo	13.00 to 13.50
Chicago	9.25 to 9.75
Cleveland (over 10 in.)	11.50 to 12.00
Detroit	10.25 to 10.75
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	8.00 to 8.50
Chicago	17.00 to 17.50
Eastern Pennsylvania	13.00 to 13.50

ARCH BARS AND TRANSOMS

Chicago (net)	19.00 to 19.25
St. Louis	20.00 to 20.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	9.00 to 9.50
Buffalo	13.50 to 14.00
Chicago	12.00 to 12.50
Cleveland	12.00 to 12.50
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh	15.00 to 15.50
St. Louis	10.75 to 11.25

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	18.00 to 18.50
Buffalo	16.50 to 17.00
Chicago	19.50 to 20.15
Cleveland	16.00 to 16.50
Eastern Pennsylvania	22.00 to 23.00
Pittsburgh	21.50 to 22.00
St. Louis	19.50 to 20.00

SHAFTING

Boston (shipping point)	15.50 to 16.00
Chicago	18.25 to 18.75
Eastern Pennsylvania	20.00 to 21.00
New York (dealers)	15.50 to 16.00
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	15.00 to 16.00
Boston (consumers)	17.00 to 17.50
Buffalo, iron	16.00 to 16.50
Buffalo, steel	17.00 to 17.50
Chicago, iron	15.00 to 15.50
Chicago, steel	17.00 to 17.50
Cincinnati	11.50 to 12.00
Eastern Pennsylvania	16.50 to 17.00
New York iron (dealers)	12.50 to 13.50
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	18.50 to 19.00
St. Louis, iron	14.50 to 15.00
St. Louis, steel	16.00 to 16.50

NO. 1 CAST SCRAP

Birmingham, cupola	16.00 to 16.50
Boston	18.00 to 18.50
Buffalo	16.75 to 17.25
Chicago, No. 1 machinery	19.00 to 19.50
Chicago, No. 1 railroad or agricultural	18.25 to 18.50
Cincinnati No. 1 machinery cupola (net tons dealers)	17.00 to 17.50
Cleveland, cupola	15.00 to 16.00
Detroit (net tons)	13.75 to 14.25
Eastern Pennsylvania, cupola	17.00 to 18.00
New York, cupola (dealers)	14.50 to 15.00
Pittsburgh, cupola	16.00 to 16.50
San Francisco, delivered	20.00 to 21.00
Seattle	16.50
St. Louis, railroad	16.00 to 16.50
St. Louis, agricultural	16.50 to 17.00
St. Louis, machinery	18.50 to 19.00
Valleys	17.50

HEAVY CAST

Boston	15.50 to 16.00
Buffalo (breakable)	14.00 to 14.50
Cleveland	12.00 to 12.25
Detroit (automobile) (net tons)	14.50 to 15.00
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	12.75 to 13.50
Pittsburgh	15.00 to 15.50

MALLEABLE

Boston, railroad	18.00 to 18.50
Buffalo	17.00 to 17.50
Chicago, agricultural	16.25 to 16.75
Chicago, railroad	16.25 to 16.75
Cincinnati, railroad (dealers)	14.00 to 14.50
Cincinnati, agricultural (dealers)	13.00 to 13.50
Cleveland, agricultural	15.50 to 16.00
Cleveland, railroad	17.00
Detroit	14.00 to 14.50
Eastern Pennsylvania, railroad	16.50 to 17.00
Pittsburgh, railroad	16.50 to 17.00
St. Louis, agricultural	13.00 to 13.50
St. Louis, railroad	14.00 to 14.50

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	14.00 to 15.00
Boston (dealers)	11.50 to 12.00
Buffalo	17.25 to 17.75
Chicago	16.00 to 16.50
Cleveland	14.50 to 15.00
Eastern Pennsylvania	17.00 to 17.50
New York	13.75 to 14.25
Pittsburgh district	18.00 to 19.00
St. Louis	15.75 to 16.25

LOCOMOTIVE TIRES

Chicago, No. 1	18.25 to 18.75
Chicago, cut	17.00 to 17.50
St. Louis, No. 1	16.25 to 16.75

LOW PHOSPHORUS PUNCHINGS

Chicago	15.50 to 16.00
Eastern Pennsylvania	17.50 to 18.50
Pittsburgh	18.50 to 19.00

Scrap

Softness Follows Prolonged Refusal of Users to Buy—Stocks Increase

EXPECTATION long held by dealers that consumers would begin buying scrap continues to be deferred and movement is confined largely to contract shipments. In some areas accumulations have increased greatly and are a burden. Prices change little but are weak and tend downward, with an occasional advance of fractional character.

Chicago, Jan. 25.—Dealers are finding its difficult to hold prices of iron and steel scrap in view of the current low rate of scrap consumption and the heavy stocks of scrap available to melters. It is estimated that dealers ordinarily carrying 300 to 500 tons in yards now are found to have three times that tonnage. At least one mill, on the other hand, is expected to be in the market again soon for steelworks scrap. Gray iron and malleable melters are moving along on moderate operations. No. 1 malleable again has sold 25 cents higher, a consumer taking a fair tonnage at $13.25. Heavy melting steel remains at $13.25 to $13.75.

Boston, Jan. 25.—Heavy melting steel dropped to $10.50, shipping point, in several recent transactions. Pennsylvania consumers of this grade are paying $16, delivered. Cast grades are in better demand than in several weeks. Several hundred tons of machinery cast sold at $17 delivered Connecticut.

New York, Jan. 25.—Scrap continues its downward trend. Following a revision of 50 cents a ton at Bethlehem, Pa., on railroad steel, dealers are now quoting $11.50 to $12.35, New York. Other recent buyers of railroad steel or equivalent are the Lukens Steel Co., Coatesville, Pa., and the Alan Wood Iron & Steel Co., Conshohocken, Pa., which dealers are supplying at $15, delivered. A Harrisburg, Pa., consumer is holding up shipments on all materials and a Pottsville, Pa., consumer is limiting shipments, but in a lesser degree.

Philadelphia, Jan. 25.—An easier tendency is reflected in scrap and $15 delivered now seems the maximum figure for heavy melting steel delivered at Bethlehem, while $15 to 15.75 has been done on some sales for delivery to other eastern Pennsylvania points. Several other grades are somewhat lower. Interest in blast furnace borings and turnings is considerable but furnaces are not bidding higher than $11, delivered, while the lowest price actually done so far is $12.

Pittsburgh, Jan. 25.—Scrap continues to drag. Slight increases in steel mill operations are noted here and there but some are still on a 33 1/3 or 50 per cent basis, and finishing departments are taking care of scrap requirements. This week the Pennsylvania and Pittsburgh & Lake Erie will issue their lists, and until these have been awarded, open market sales will be practically absent. Single conloads of various grades change hands as they appear, usually at prices entirely favorable to the buyer. Heavy melting steel is quoted at $16.50 to $17.

St. Louis, Jan. 25.—Support from consumers of iron and steel scrap is lacking, and the market remains at a dead level. The only price changes recorded were fractional, more to readjust than in response to increase or decline in demand.

Buffalo, Jan. 25.—Stove plate is the only active scrap material. Buyers have increased offers to a top of $15. Some heavy melting steel is being shipped on old contracts but there is no new buying of tonnage. No. 1 cast shows some activity, and mixed turnings and borings for blast furnace use.

Cleveland, Jan. 25.—Scrap consumers continue to lack interest and shipments on contracts form the only activity. Dealers are clearing their tonnages and hope for further buying soon. Prices have resisted decline in spite of conditions.

Detroit, Jan. 25.—Improvement in iron and steel scrap is developing slowly. Current buying is small and while inquiries are being received actual orders are few. Filling of old orders is keeping some tonnage moving, but the aggregate is not large. Prices are weak.

Birmingham, Ala., Jan. 25.—Shipments on contracts continue and yards are busy, though no buying is being done and quotations remain nominal, heavy melting steel at $13.

No. 1 buttweld pipe mill of the Republic Iron & Steel Co., Youngstown, recently was remodeled and a pipe straightening machine installed.

Sheets

Mills Show Less Tendency to Duplicate Recent Low Prices—Auto Industry Orders More

A BETTER tone is noted in the sheet market, as larger orders are tending to strengthen mills. Some sellers went below 3.00c, Pittsburgh, on black, and to 2.10c on blue annealed and to 4.10c on full finished. Chicago makers say they have been squeezed out of some sales by eastern mill competition. Purchases by the automotive industry are improved slightly.

SHEET PRICES, PAGE 278

Pittsburgh, Jan. 25.—Because of increased tonnage sheet manufacturers are less inclined to duplicate some recent low quotations developed by purchasers of large lots. Occasionally, however, some lower prices than the quoted minimums are encountered, in special instances where heavy extras more than make up for deficiency in base price. American Sheet & Tin Plate Co., while retaining its official levels, is meeting competition to a certain extent, usually stopping at 3.00c on black, although occasionally having to go below that to protect its customers. A purchaser of galvanized sheets recently claimed to have a 3.65c figure but would not place the tonnage with the maker quoting it and paid the leading interest 3.75c. Blue annealed tonnage is more plentiful and while in one or two instances 2.10c has been touched, producers here claim to be adhering to 2.20c or 2.25c. The American company received several attractive lots on Monday at 2.25c, Pittsburgh, and 2.35c, Gary. Full finished sheets are quoted at 4.15c and strip steel makers credited with quoting a price equivalent to 3.80c for No. 20 gage full finished deny it, but admit having gone to the equivalent of 4.10c on some particularly attractive tonnage. Purchases by automobile and parts makers are increasing. General sheet mill operations have been averaging 60 or 65 per cent but may not reach 60 per cent this week because of high water reaching the pits at some of the river mills, particularly McKeesport, Pa.

Boston, Jan. 25.—Sheet prices are soft, and demand is dull at Boston. Galvanized sheets have dropped to 3.75c, Pittsburgh. Black sheets are 2.90c. and blue annealed 2.25c.

Youngstown, O., Jan. 25.—Operations of independent sheet mills in this district are expanding gradually. A few more mills have gone on the active list, but generally the expansion has come through the same number of mills working a larger number of turns weekly, going to work Sunday night instead of Tuesday morning. Quotations appear slightly firmer, the former low prices on No. 24 gage black, disappearing. Four district mills refused to accept a tonnage offered at 2.75c, and the

minimum appears to be 2.85c with the bulk of the tonnage going at 2.90c, Pittsburgh. Galvanized sheets can be had at 3.75c but with most mills refusing to go below 3.85c at this time. The firmess branch of the sheet market is tin mill black, while the minimum on full-finished appears to be 4.15c, but with some valley mills still getting orders at 4.25c for quick shipment. The broadening of the sheet trade and the apparent ending of the stampede toward lower prices has brought to the valley industry more cheerfulness.

New York, Jan. 25.—Undertone in sheets reflects desire of mills for business. On blue annealed the usual price is 2.25c, base Pittsburgh, and mills will go to 2.20c for attractive orders. On black the usual figures are 2.85c and 2.90c, but attractive orders have brought out 2.80c. Galvanized are bringing 3.75c to 3.85c, base, Pittsburgh, and intimations have been made that less could be done on tonnages.

Philadelphia, Jan. 25.—New Jersey opened bids yesterday on 700 to 800 tons of automobile tags, specifications calling for practically full-finished sheets. Wheeling Steel Co. was low, quoting $3, delivered at Trenton, per 100 tags, weighing about one pound each, stamped to size, with corners rounded. This is equivalent to 2.65c, Pittsburgh, which, less extras, is around 2.16c, base, Pittsburgh, for one-pass, cold-rolled material. Another company which has been getting the business for several years and which makes the tags from automobile body scrap quoted $3.29 per 100 blanks of one size and $3.89 of another size.

Chicago, Jan. 25.—In districts where the freight margin of Pittsburgh over Chicago becomes narrow, sheet producers here find it difficult to meet competition. This competition is forcing Chicago mills out of former advantageous territory. Galvanized sheets are not strong at 3.95c to 4.05c, Gary and Indiana Harbor. The leading independent finds buying somewhat improved in the Northwest and in portions of the Southwest. A better market is expected within the next 30 days. Mill operations are barely above 75 per cent.

Cleveland, Jan. 25.—Demand for sheets in this district fails to improve, although several sellers claim to have booked a number of 50 to 100-ton sales in the past week. Black sheets at 2.90c, Pittsburgh, are a little more stable, although several mills continue under that level. Galvanized at 3.75c, blue annealed at 2.20c and autobody at 4.15c to 4.25c represents the market. A few mills continue to quote 3.85c on galvanized and 2.30c on blue annealed, but the lower prices are becoming more generally accepted.

"Cycles Versus Common Sense" by Elbert H. Gary, chairman, United States Steel Corp., an interview with William A. McGarry, which appeared in a recent issue of *The Saturday Evening Post*, has been reprinted and is being distributed by the United States Steel Corp.

Tin Plate

Mills Operate at High Rate—Specifications Liberal

TIN PLATE PRICES, PAGE 278

Pittsburgh, Jan. 25.—A backlog of orders from canmakers enables the American Sheet & Tin Plate Co. to maintain full schedules at its tin plate mills. This will be interfered with somewhat this week owing to the loss on Monday of three, four or possibly five turns at its Laughlin works, Martins Ferry, O., due to flood stage of the Ohio river. After the water recedes full operations will be resumed. Independents are averaging above 90 per cent, a liberal specifying rate being continued by their customers. While some competitive levels recently were uncovered in West Virginia, the open market figure continues unchanged at $5.50.

New York, Jan. 25.—Certain consumers which usually do not begin to order tin plate until March or April have started to put in specifications for shipments to begin at once. As a result mills have well rounded schedules.

San Francisco, Jan. 25.—About 286,000 base boxes of tin plate have been placed with eastern producers by the Standard Oil Co.

J & L Earnings Show a Gain in 1926

Total net earnings of the Jones & Laughlin Steel Corp., Pittsburgh, amounted to $21,210,206 in 1926, according to the financial statement of the company just made public. Net income, after charges was $15,149,094 compared with $9,954,494 in 1925. The company's total surplus at the close of the year was $49,270,070. Directors declared the regular quarterly dividend of 1¾ per cent on preferred stock and 1¼ per cent on common stock. A pension fund appropriation of $250,000 was made by the company.

Pipe

Mills Accumulating Stocks—Jobber Buying Slow—Cast Pipe Demand Unusually Heavy

TUBULAR mills are accumulating backlogs in preparation for spring demand from jobbers. Cast iron pipe activity remains a feature of the tubular products market. Detroit and Duluth are in the market for 4200 tons each, and specifications are expected out shortly in New York for 10,000 tons for municipal consumption. Awards include 2250 tons for Flint, Mich.

PIPE PRICES, PAGE 278 AND 314

Pittsburgh, Jan. 25.—Pipe buying does not show much increase. While jobbers have completed inventories they have not started ordering against their spring needs. In a few isolated cases stocks have been replenished. Mills have taken advantage of the lull to bring stocks to normal proportions so deliveries can be made promptly. Operating schedules are subject to fluctations. The general operating average is understood to be about 65 or 70 per cent. National Tube Co. recently credited in New York dispatches with receiving an order for 7750 tons of line pipe for a 100-mile line for the Magnolia Petroleum Co., denies having received this order as yet. Prices are firm.

New York, Jan. 25.—Cast pipe makers here are advised that specifications will be out in about two weeks on 10,000 tons of 6 to 30-inch pipe for the local department of water supply, gas and electricity. The municipal market otherwise is featureless.

Pipe mills are quoting on an inquiry for 400 tons of 8-inch line pipe issued by one of the Standard Oil subsidiaries here.

Chicago, Jan. 25.—More cast iron tonnage is developing greatly exceeding earlier expectations. Competition for tonnages to balance books of makers continues strong, and prices still are irregular but are showing a tendency toward firmness as makers have begun to acquire heavier backlogs. Among pending projects are 4200 tons each for Detroit and Duluth. Pontiac, Mich., is in the market for 1900 tons, bids to be opened Jan. 31.

Birmingham, Ala., Jan. 25.—Many lettings are reported by cast iron pressure pipe manufacturers in this section, and shops now are operating at capacity rates. Quotations are low, around $36 per ton, being common on 6-inch and over sizes. Business from the northwest in particular is good and more business is in sight from the Middle West as soon as the weather begins to moderate.

CONTRACTS PLACED

3000 tons, Consolidated Gas Co., New York, reported placed with United States Cast Iron Pipe & Foundry Co.; understood 5000 tons still to be purchased.

2250 tons, 6 to 16-inch pipe, for Flint, Mich., to James B. Clow & Sons.

1600 tons, 6 to 16-inch pipe, for Milwaukee, to National Cast Iron Pipe Co., in addition to tonnage placed last week.

1100 tons, 6 to 16-inch pipe, for Milwaukee, 900 tons of 6, 8 and 12-inch awarded to American Cast Iron Pipe Co., and 200 tons of 16-inch to United States Cast Iron Pipe & Foundry Co., in addition to contract placed last week.

419 tons, Lamesa, Calif., to United States Cast Iron Pipe & Foundry Co.
217 tons, Vallejo annex, Santa Barbara, Calif., to United States Cast Iron Pipe & Foundry Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

10,000 tons, 6 to 30-inch cast pipe, for department of water supply, gas and electricity, New York; specifications expected out through the board of purchase in fortnight.
4200 tons, 6 to 36-inch pipe, for Duluth; bids to be opened Jan. 31.
4200 tons, 6 to 16-inch pipe, for Detroit; bids to be opened Jan. 29.
1900 tons, 6 to 16-inch pipe, for Pontiac, Mich.; bids to be opened Jan. 31.
1500 tons, 6 to 16-inch pipe, for Columbus, O.; former bids rejected.
1198 tons, Sacramento, Calif.; bids asked.
720 tons, San Diego, Calif.; bids asked.
450 tons, 6 and 12-inch pipe, Yonkers, N. Y.; B. Nicoll & Co., representing French makers, low, and R. D. Wood & Co. second.
277 tons, Fairfield, Calif.; bids asked.

Employs New Process of Case Hardening

A new method of surface hardening of special steel by nitrogen, developed by Dr. Adolf Fry in the research laboratory of the Krupp works, Essen, Germany, and in the laboratories of Aubert and Duval Freres, Paris, France, is being employed by the Ludlum Steel Co., Watervliet, N. Y., which recently secured the right to adapt the process to American conditions.

The process, according to President Corning, is carried out under 550 degrees Cent. and the ultimate hardness is obtained without the necessity of further heat treatment and the consequent deformation, distortion and breakage often experienced in this necessary part of the case hardening process.

The present new process of nitriding is based, as in the case of carbon case-hardening, on the phenomena of diffusion, but instead of carbon, nitrogen is allowed to penetrate the surface of the finished metal to be hardened which must be a steel of suitable analysis.

Iron Ore

Cleveland, Jan. 25.—Negotiations for some long term contracts for Lake Superior iron ore apparently have not been completed. Current demand is quiet. The Lake Superior Iron Ore association reports the following record of consumption and dock balances:

	Tons
Ore consumed in November	4,716,986
Ore consumed in December	4,562,020
Decrease in December	154,966
Ore consumed in December, 1925	4,964,515
Ore at furnaces Jan. 1, 1927	31,286,141
Ore on Lake Erie docks, Jan. 1, 1927	7,139,610
Total at furnaces and Lake Erie docks, Jan. 1, 1927	38,425,751
Total, Jan. 1, 1926	36,898,684

Manganese iron first was smelted in the blast furnace in 1808.

Bars

Better Bookings Appearing as Price Is Easier—Some Contracts Revised

WHILE makers are seeking to maintain price it has been necessary to revise some contracts back to 1.90c, Pittsburgh, to meet competition. Small lots continue to command 2.00c. Chicago mills maintain 2.10c for delivery at home. Better bookings are coming to mills and the period of waiting seems to be nearing its end. Releases on contracts are appearing.

BAR PRICES, PAGE 278

Chicago, Jan. 25.—Several encouraging factors have made themselves felt in finished steel markets during the week. Car building shops are beginning to specify, prospective structural business looms large and February schedules of automotive interests are much heavier than January. Specifications and shipments of finished steel discloses more vigor than since early in December. Soft steel bar orders of the leading interest in this district are 90 per cent heavier than the similar period in December, this demand coming from forging interests, automotive works, automotive parts makers, and to some extent from farm implement interests. Orders placed by users of bars, shapes and plates were fully 25 per cent heavier than the preceding week, although bar orders alone have shown only a small advance over last week. Specifications from car builders are an important factor in the strengthening activity. The automotive industry now gives evidence of an output comparing favorably with 1926. On the other hand, buying by farm implement interests is low.

Bar iron mills have no backlogs and are operating on current business only. Rail steel is 1.90c to 2.00c, while bar iron is steady at 2.00c, Chicago.

Despite competition which has been forcing prices to a somewhat weaker level in eastern markets, steel bar quotations are holding at 2.10c, Chicago, for business in this immediate territory. Some larger buyers are exerting pressure to have mills equalize prices when no fabrication-in-transit freight advantages can be obtained, but mills are making every effort to hold their quotation at 2.10c.

New York, Jan. 25.—It now has been generally accepted by consumers and a number of mills that contracts for steel bars recently put on the books at 2.00c, base, Pittsburgh, will be marked down to 1.90c. This weakening in the situation is the result of the recent tendency to take on a larger proportion of the new business at 1.90c.

Pittsburgh, Jan. 25.—Jobbers and consumers of merchant steel bars are becoming more liberal with their orders, to replenish stocks. Cold bar finishers, oil well tool manufacturers, spring makers, etc., are furnishing attractive specifications, the former having received some releases from automotive customers and they in turn have released their hot bar orders. One received yesterday involved 525 tons, and there are more orders for 100 tons upward than since the first of the year. Some buyers with 500 tons or so to place have made unsuccessful efforts to develop 1.80c. Attractive business takes 1.90c, as developed by the Pennsylvania railroad on its recent 7000-ton order. Small lots still are bringing 2.00c.

Youngstown, O., Jan. 25.—Contracts for first quarter steel bars still are being carried on mill books at 2.00c, Pittsburgh. While no formal revision of contracts has taken place, it is understood that when shipments thereon are made the buyers are being billed in instances at 1.90c, or whereever competition forces the concession. A more encouraging volume of orders for steel bars gradually is appearing and a few more bar mills are being put to work.

Cleveland, Jan. 25.—New business and shipments continue to show a slight edge over December, taking the market as a whole, and with some sellers business is not far under the level of last January. The prospects from the automotive industry are brighter. Ford Motor Co. has gone from a three to a five-day week, and practically all makers will have higher schedules in February. The 1.90c, Pittsburgh, price on soft steel bars gives the local delivered market a top of 2.09c. On bars made locally 1.90c is quoted, with reports of less on attractive business.

Hoops and Bands

Prices Under Prevailing Base Becoming Less Noticeable

HOOP PRICES, PAGE 278

Pittsburgh, Jan. 25.—While some reports of prices lower than 2.30c on hoops and bands are heard, sales at that price are more numerous and some makers are endeavoring to go no lower than 2.40c. Occasionally 2.30c is quoted to meet competition where it is absolutely necessary, to hold old customers. Orders are more numerous, particularly from automotive and allied consumers. Other users are contributing to the buying movement in a slightly more liberal fashion, which indicates that the improvement in business is fairly general.

Structural Shapes

Improvement in Activity Is Slow in Developing—Awards Fall from High Level of Earlier Weeks in January—Prices Easier

AWARDS and inquiries involving structural steel were light in the past week. Contracts placed fell from the high marks of the first two weeks in January. A number of heavy tonnages are pending, but awards are slow in developing. Inquiry continues to be brought out in good number in some districts. Awards of the week include 4000 tons for the Missouri Pacific railroad building in St. Louis. Pending work includes 5000 tons for the DeWitt Clinton school in New York.

An easier tone in plain material prices is more evident. Where 2.00c, Pittsburgh, equivalents had prevailed for many months, 1.90c. quotations are beginning to appear. Prices on material fabricated and erected in particular are being shaded.

STRUCTURAL SHAPE PRICES, PAGE 278

New York, Jan. 25.—Structural activity is fairly well maintained with considerable tonnage under contemplation. Inquiry is featured by a 5000-ton high school here. Keen competition continues on fabricated material, with easiness also noted in shapes. While plain material may still be quoted at 1.85c to 2.00c, Pittsburgh, the bulk of business is nearer the inside figure, with occasional dipping under that. Plans are understood to be completed by federal architects at Washington on a $31,750,000 post office here.

Boston, Jan. 25.—Architects report more work on their tables than in many months, but actual building projects are slow to develop. Most wards of the past week were under 100 tons. Prices of plain shapes range from 1.90c to 2.00c, Pittsburgh.

Philadelphia, Jan. 25.—Structural shape demand is quiet. The usual range on prices is 1.80c to 2.00c, Pittsburgh, subject to concessions in special cases.

Pittsburgh, Jan. 25.—Small jobs again are common among structural shape fabricators here. One fairly important shop states that jobs placed with it last week amounted to only 28 tons, while one or two others report 50-ton totals. Several 1000-ton lots are under inquiry. Prices hold firmly at 1.90c to 2.00c, but successful bids on material fabricated and erected have to be made so low that they are entirely unsatisfactory to those competing.

Cleveland, Jan. 25.—Awards involving carload lots or over of structural shapes during the past week were few. Several contracts of 75 to 100 tons were placed, and one lot of 600 tons at Maple Grove, O., was awarded. Plain material is more commonly quoted at 1.90c, Pittsburgh, several fabricators having purchased tonnage at that price. On small miscellaneous lots, and on a few contracts, 2.00c prevails. A local contract placed recently drew keen competition on bidding, several fabricators quoting approximately $80 a ton erected.

Chicago, Jan. 25.—The bulk of structural inquiry calls for small-lot tonnages, but this aggregates a fairly heavy tonnage. In the past ten days 15,000 to 18,000 tons of structurals have been awarded. Larger fabricating shops are specifying at a steady rate, although some of the smaller shops could stand more business, and competition is keen. The quotation of 2.10c, Chicago, is holding in the immediate Chicago district, but sellers find difficulty in meeting competition where the freight differential over Pittsburgh becomes narrower.

Awards Compared

	Tons
Awards this week	20,570
Awards last week	24,425
Awards two weeks ago	53,772
Awards this week in 1926	22,825
Average weekly awards, Dec.	35,144
Average weekly awards, 1927	40,584
Total awards to date, 1926	85,992
Total awards to date, 1927	142,322

CONTRACTS PLACED

4000 tons, building for Missouri Pacific railroad at St. Louis, to American Bridge Co.
2000 tons, lead cable plant for Western Electric Co., Chicago, to McClintic-Marshall Co.
1800 tons, four operations in the metropolitan district, New York, to independent fabricator.
1500 tons, apartment, 21-33 West Ninety-sixth street, New York, to Dreier Iron Works.
1300 tons, Dwight P. Robinson apartment, Seventy-first street and Park avenue, New York, to Lehigh Structural Steel Co.
1100 tons, apartment 175th street and Walton avenue, New York, to Claremont Iron Works.
1000 tons, apartment hotel, 825 Fifth avenue, New York, to the Easton Structural Steel Co.
1000 tons, medical towers building, Newark, N. J., to Hay Foundry & Iron Works.
1000 tons, apartment, Seventieth street and West End avenue, New York, to Easton Structural Steel Co.
600 tons, building for Dolomite Products Co., Maple Grove, O., to Republic Structural Iron Works.
550 tons, tin house for Continental Can Co., Clearing, Ill., through R. F. Wilson Co., general contractor, to American Bridge Co.
510 tons, 9-story apartment, 163-9 East Eighty-first street, New York, and a silicate building for Proctor & Gamble, Port Ivory, Staten Island, to Lehigh Structural Steel Co.
450 tons, apartment, 165th street and University place, New York, to Alpha Iron Works.
400 tons, Darling building, Wilmington, Del., to Shoemaker Bridge Co.
400 tons, three operations, New York, to J. Kline Iron Works.
350 tons, miscellaneous work in Pittsburgh and nearby districts, to Pittsburgh-Des Moines Steel Co.
350 tons, Roosevelt school, Detroit, to American Bridge Co.
300 tons, Lucy Flower high school, Chicago, awarded by Michuda Bros., general contractors, to Western Architectural Iron Co., Chicago.
300 tons, apartment, 522 Ocean avenue, Brooklyn, N. Y., to Schecker Alper Iron Works.
300 tons, office building in San Francisco, to Central Iron Works.
250 tons, Weigel & Garver, loft, Hartford, Conn., to an unstated fabricator.
225 tons, apartment, Pellham place and Tremonth avenue, New York, to Royal Iron Works.
200 tons, 150-foot bridge span, Chicago & Alton railroad, to American Bridge Co.
170 tons, factory, 194 North Fortieth street, Brooklyn, N. Y., to Alpha Iron Works.
150 tons, building for Union Carbide & Carbon Co. at Niagara Falls, N. Y., to American Bridge Co.
135 tons, church on Fourteenth street, between Fourth and Fifth avenues, Brooklyn, N. Y., to Dependable Iron Works.
130 tons, store, 462 Fifth avenue, Brooklyn, N. Y., to Adam Happel Iron Works.
100 tons, addition to Union Dimes Savings bank, 105 West Fortieth street, New York, as previously reported to Post & McCord, fabrication sublet to American Bridge Co.
100 tons, town hall, Spencer, Mass., to E. T. Pittfield Co., Worcester, Mass.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

15,000 tons, Fidelity Philadelphia Trust building, Philadelphia; award expected this week.
5000 tons, DeWitt Clinton high school, Mosholu parkway and Gaynor street, New York; bids opened Feb. 23.
1200 tons, post office and court house, Syracuse, N. Y.; bids asked.
1000 tons, Knights of Columbus building, Toledo, O.; bids being asked.
1000 tons, two buildings for the United States Gypsum Co., Akron, N. Y., near Buffalo; bids being taken.
800 tons, building for St. Marys Sewer Pipe Co., St. Marys, Pa.; general contract awarded Hughes-Foulkrod Co.
800 tons, highway bridge, Bridgeport, Conn.; bids being taken.
750 tons, court house, Hartford, Conn.; bids being taken.
500 tons, Hendrick Hudson garage, Troy, N. Y.; bids asked.
500 tons, addition to Ohio hotel, Youngstown, O.; bids being taken.
400 tons, eight highway bridges, Illinois state highway commission, Springfield, Ill.; Vincennes Bridge Co. reported low bidder.
400 tons, Central Trust Co. building, Cambridge, Mass.; refigured bids being taken.
175 tons, addition, conservatory of music, Boston; bids being taken.
160 tons, skating rink for the Palisade Interstate Park commission at Bear Mountain, N. Y.; bids asked.
115 tons, nurses home, Salem, Mass.; bids in.
100 tons, store building addition, Kaufmann & Baer Co., Pittsburgh; bids being compiled.
100 tons, theater, Dormont, Pa.; bids being compiled.

100 tons, theater, McKees Rocks, Pa.; bids being compiled.
Tonnage unstated, Baldwin Locomotive Works, executive office building, Eddystone, Pa.; bids asked.

Estimating Bureau Set Up in New York

New York, Jan. 25.—As a further step in elimination of waste in building construction members of the New York Structural Steel Board of Trade will at once establish a central board of steel estimators. This board will figure the quantity and costs on all plans submitted by member companies, leaving the companies to take these base estimates and add whatever is necessary for overhead and profit. It is the aim to have this central group of estimators all experts, as the New York Structural Steel Board of Trade will guarantee to its members accuracy within 1½ per cent. Errors in excess of that amount will be paid for in cash by the organization.

John Wood Jr. Dies

John Wood Jr., one of the founders of John Wood Mfg. Co., Conshohocken, Pa., one of the largest range boiler manufacturers in the country, died Jan. 21 at his home there, aged 80. He had been retired a number of years. He was a son of Squire John Wood, for a long time president of the company which later became the J. Wood department of Alan Wood Iron & Steel Co.

Buys Borings Like Ore

Bethlehem, Pa., Jan. 25.—Bethlehem Steel Co. is working out a change in its present methods of purchasing blast furnace borings and turnings. The company has found that shipments of this scrap do not run uniformly as to quality. The company now is analyzing every carload as it is received and is compiling data from which it is expected to put into operation shortly a unitage schedule based on the amount of iron contained. Thus, instead of so many dollars per ton, Bethlehem will buy its blast furnace borings and turnings in the same way as iron ore.

Eddystone Gets Baldwin Plant by 1928

Philadelphia, Jan. 25.—The entire plant of the Baldwin Locomotive works, located near the heart of Philadelphia for more than half a century, will have been moved to Eddystone, south of Philadelphia, by the middle of 1928, according to Samuel M. Vauclain, president. Mr. Vauclain said the Eddystone location, embracing 600 acres, offers plenty of room for expansion. He said that the company is determined to go after the world's business. The site of Eddystone is on the Delaware river, so that export shipments may be made with facility.

Concrete Bars

Pending Work Increases but Awards are Light and Few—Prices Hold Steady

NEW work involving concrete reinforcing bars continues to come out in good volume, but the number of projects being closed remains small. Awards for the week were few and light. General buying by contractors and road builders is not expected to be resumed for another 30 to 60 days, when weather allows outside construction. Prices are steady in most centers.

REINFORCING BAR PRICES, PAGE 278

Pittsburgh, Jan. 25.—Concrete bar projects are increasing as spring advances. Awards have been small this month with one or two exceptions, but some work involving 1000 to 2000 tons is making progress toward the stage where bids will be closed. Included are warehouses for the Joseph Horne Co. As a result of a meeting of concrete bar sellers with county commissioners yesterday, Allegheny county has decided to specify other kinds of deformed bars besides square twisted for culverts, retaining walls, etc., as well as in connection with road work. Mill prices are unchanged at 2.00c, Pittsburgh.

Boston, Jan. 25.—Concrete bar sales and inquiries have improved. Individual projects are small. The mill price ranges from 1.90c to 2.00c and the Boston warehouse price from 2.90c to 3.00c.

Buffalo, Jan. 25.—The reinforcing bar market is quiet. One new 250-ton inquiry is out this week but none of the old inquiry has been covered. Mill operation continues low. Prices are steady.

Cleveland, Jan. 25.—Another week has passed by without the local concrete bar market showing improvement. A few inquiries were brought out during the week, but awards were small. Total pending work exceeds several thousand tons, but much of this is continually being deferred. New billet bar prices range from 1.90c, Cleveland, to 2.00c, Pittsburgh, equivalent. Rail steel quotations are steady at 1.80c, mill, for current business, but attractive tonnage would probably develop shading.

Chicago, Jan. 25.—Much of the pending tonnage of reinforcing bar work for building will not be awarded before 30 to 60 days. About 5000 tons of state road work will be contracted for soon. Some warehouses are seeking to bring about firmer prices, but quotations, both for billet and rail steel bars, are unsteady.

CONTRACTS PLACED

600 tons, office building at Wells and Van Buren streets, Chicago, to Olney J. Dean & Co.
500 tons, Hillcrest hospital, Oakland, Calif., to local jobber.
275 tons, Darling building, Wilmington, Del., to Kalman Steel Co.
250 tons, Citizens Aid building, Minneapolis, to Olney J. Dean & Co.
150 tons, Mansfield avenue sewer, Philadelphia, to Baker warehouse.
120 tons, bridge for Worcester park commission, New Jersey, to Joseph T. Ryerson & Son Inc., general contract to S. J. Groves, Camden, N. J.
100 tons, miscellaneous work including 30 tons for Elm Grove high school, Bellaire, O., through Charles D. Keyser, general contractor, to Truscon Steel Co.
100 tons, Irving high school, Erie, Pa., through J. J. Conrath, general contractor, Erie, Pa., to Carlem Engineering Co., Pittsburgh.
100 tons, Erie avenue sewer, Philadelphia, to Baker warehouse.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

700 to 800 tons, two piers for harbor commission in San Francisco; Healy Tibbitts Co. low bidder on contract.
475 tons, government barracks, Fort Monmouth, N. J.; bids asked.
250 tons, West Side Auto Storage Co., Rochester, N. Y.; Turner Construction Co., Buffalo, low bidder on general contract.
220 tons, court house, Hartford, Conn.; bids being taken.
200 tons, Cross and Blackwell building, Baltimore; bids asked.
200 tons, bars and mesh, Clark theater and office building, Pittsburgh; general contract awarded Winslow Construction Co., Philadelphia, and Price Construction Co., Baltimore.
130 tons, Loew's theater, West 117th street and Detroit avenue, Cleveland; Craig-Curtiss Co., general contractor.
100 tons, laboratory building, National Tube Co., Pittsburgh; bids being compiled.
Tonnage unstated, Philadelphia Inquirer building addition, Philadelphia; bids asked.

Awards Compared

	Tons
Awards this week	2,195
Awards last week	3,885
Awards two weeks ago	8,719
Awards this week in 1926	5,900
Average weekly awards, Dec.	3,811
Average weekly awards, 1927	4,284
Total awards to date, 1926	17,369
Total awards to date, 1927	15,049

Ask Lower Barge Rates

Chicago, Jan. 25.—Upper Mississippi cities last week at a hearing before Examiner John H. Powell of the interstate commerce commission sought to get a 20 per cent reduction on joint rail and water rates, compared with present all-rail rates, through operation of barges between Dubuque, Minneapolis and St. Paul. Counsel for the cities has asked for a ruling which will permit operation of the barges by April 1.

Rails, Cars

Car Activity Continues With B. & O. Awarding 3000—Southern Pacific Places Rails

AWARD of 3000 cars by the Baltimore & Ohio featured another good week in railroad equipment activity. Inquiry also shows more signs of life. Numerous small orders were closing during the week. Southern Pacific placed 42,500 tons of rails of which 29,500 tons went to Colorado Fuel & Iron Co. Boston & Maine is inquiring for more than 1,000,000 tie plates.

RAILROAD TRACK MATERIAL PRICES, PAGE 278

Chicago, Jan. 25.—A fair tonnage of standard steel rails remains to be placed before the secondary rail buying movement begins. Rail inquiry pending, in miscellaneous lots of 500 to 1000 tons, totals 10,000 tons. Light rail business totaled 700 to 800 tons during the week. Southern Pacific is spending an average of $100,000 mothly, it is understood, with Colorado Fuel & Iron Co. for miscellaneous steel products, delivery to be made early in third quarter.

Of the 3600 cars awarded during the week, 500 refrigerators are for Union Refrigerator lines, awarded to American Car & Foundry Co., and 100 ballast cars for Missouri Pacific to the same car builder. Canadian National railways inquiry for 3179 cars calls for 1100 cars to be delivered on its United States lines, and 2079 cars for Canadian use.

The St. Louis & San Francisco will spend more than $21,000,000 for roadway, structures and new equipment in 1927. The budget calls for an expenditure of $18,557,000 for roadway and structures.

A western road has placed 4000 tons of track fastenings with Chicago mills. The total on inquiry is 15,000 tons.

Boston, Jan 25.—Bangor & Aroostook and the Maine Central have made 1927 rail reservations and contracts are expected before Feb. 1.

New York, Jan. 25.—Car orders continue in good volume, with the placing of 3000 by the Baltimore & Ohio outstanding. Inquiry also is well maintained. Not including the 3220 cars placed just before the close of last year by the Missouri Pacific, more than 12,000 freight cars for domestic account have been placed in January to date.

The southern Pacific railroad placed the only important rail tonnage booked by rail mills the past week. This road placed 42,500 tons, of which 29,500 tons went to Colorado Fuel & Iron Co., 10.000 tons to Tennessee Coal, Iron & Railroad Co., and 3000 tons of girder rails to Bethlehem Steel Co.

Pittsburgh, Jan. 25.—Interest of track accessory manufacturers in this and other districts is aroused over the most recent inquiry for tie plates, namely from Boston & Maine, for more than 1,000,000 plates. So far as can be learned, nothing below $47 per ton has been quoted. Spike prices are holding firmly. Small spikes are being sold in small quantities to coal mine operators and other users at 2.90c to 3.00c. Specifications against light rail contracts have been fairly liberal to large producers.

Philadelphia, Jan. 25.—Several light rail inquiries are pending here, principally for anthracite companies.

CAR ORDERS PLACED

Baltimore & Ohio, 3000 cars, 2000 hopper cars, divided equally between Bethlehem Steel Co. and Standard Steel Car Co., and 1000 box cars divided between Pressed Steel Car Co. and American Car & Foundry Co.

Buffalo, Rochester & Pittsburgh, repairs to 500 gondola cars, to American Car & Foundry Co.

Chicago, Milwaukee & St. Paul, five gas-electric motor cars, with electromotive power equipment, placed with unstated builder.

Chicago & North Western, 120 cars, 40 suburban passenger and baggage coaches each to Pullman Car & Mfg. Corp., Standard Steel Car Co. and American Car & Foundry Co.

Chicago, South Shore & South Bend, 20 passenger cars, to Pullman Car & Mfg. Corp.

Eastern Massachusetts Street Railway Co., 25 double truck trolley cars, to Osgoode Bradley Car Co.

Goodwin-Gallagher Sand & Gravel Corp., eight hopper cars, to Magor Car Corp.

Gulf, Mobile & Northern, two passenger coaches, to American Car & Foundry Co.

Mobile & Ohio, 50 hopper cars and 50 gondola cars, to the Chickasaw Ship Building & Car Co. plant of Tennessee Coal, Iron & Railroad Co.; this is in addition to 600 reported placed with same company in last week's issue.

Mobile & Ohio, two gas-electric motor trailer cars, to J. G. Brill Co.

Montour railroad, one air dump car, to Koppel Industrial Car & Equipment Co.

South African railways, 25 tank cars, to Standard Steel Car Co.

Tidal Refining Co., 200 tank cars, reported in last week's issue as going to an unstated builder, went to American Car & Foundry Co.; this business was placed through Tidewater Oil Co., New York.

Union Refrigerator Transit Co., 500 refrigerator cars, to American Car & Foundry Co.

LOCOMOTIVE ORDERS PLACED

Sydney & Louisburg, two locomotives, to Montreal Locomotive works.

CAR ORDERS PENDING

New Inquiry and Developments on Projects Previously Reported

Atlantic Coast Line, 58 underframes; bids asked.

Canadian National, 1000 box cars, pending; these are in addition to the 1000 automobile box cars, 100 ballast cars, six baggage cars and two mail and express cars, previously reported as pending.

Chicago, Burlington & Quincy, 300 ballast cars; bids asked.

Chicago & North Western, 500 hopper cars, 500 car sets, under frames and superstructures indicating construction in own shops; bids asked.

New York Central, 19 gas-electric railmotor cars; bids asked.

LOCOMOTIVE ORDERS PENDING

Grand Trunk railway, 26 locomotives; bids asked.

Refractories

Orders Show Slight Improvement—Silica Decline More General

Pittsburgh, Jan. 25.—Makers of refractories report only slight improvement in the demand for silica and fire clay brick. Orders are for actual requirements, mainly for repair purposes, although some orders for larger quantities have been placed recently by Weirton Steel Co. for open hearths, and by Carnegie Steel Co., for rebuilding six or seven stoves at the Carrie furnaces, taking 600,000 each. Two furnaces are being relined there as well, but the brick has been under order for some time. The Koppers Co. has been an important customer for coke oven brick. Kiln operations do not average much above 60 or 65 per cent, one or two producers with good backlogs being able to maintain a 70 per cent schedule. In connection with prices, the silica brick decline early in the year has become more general, Pennsylvania going to $40. Some makers still ask $43 for small quantities. First grade clay fire brick sells at $40 to $43.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$40.00 to 43.00
Pennsylvania, No. 2	35.00 to 38.00
Ohio, No. 1	40.00 to 43.00
Ohio, No. 2	35.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	40.00 to 43.00
Kentucky, No. 2	38.00 to 40.00
Missouri, No. 1	40.00 to 43.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	40.00 to 45.00
Maryland, No. 2	36.00 to 40.00
Georgia and Ala. No. 1	40.00 to 45.00
Georgia and Ala. No. 2	30.00 to 35.00

SILICA BRICK

Pennsylvania	40.00 to 43.00
Chicago	49.00 to 52.00
Birmingham	49.00 to 52.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	45.00

A paper on mercury turbines by Lucian A. Shelbourne, General Electric Co., Schenectady, N. Y., was presented before the January meeting of the Providence, R. I., section of the American Institute of Electrical Engineers, Jan. 4. The speaker stated that the latest developments in mercury boiler and turbine installations will decrease steam power generating costs by one-third or more.

Wire

Better Specifications from Railroads and Others Give Larger Activity

ALL buyers of wire and nails are taking larger shipments—jobbers, manufacturers and railroads—with resulting increase in activity, though mills have not been able to increase production. Prices are being held firmly in most instances, though concessions in New England are reported. Jobbers in farming sections are more hopeful than last autumn.

WIRE PRICES, PAGE 278

Chicago, Jan. 25.—Specifications for nails by railroads have become noticeably heavier, and the manufacturing trade also is specifying more actively for wire and nails. This spurt in wire and nail business has enlivened the market for the first time in three months. It is estimated that current activity is more than 15 per cent over late December business. Jobbers also are increasing specifications for nails, wire and fencing. Jobbers in southern territory are much more hopeful than in the late autumn and in the northwestern farm areas it is expected buying will develop if weather conditions appear at all favorable. Quotations for nails and wire continue steady.

Boston, Jan. 25.—Wire sales have improved slightly and wire manufacturers report better orders. Production of Worcester mills has been increased from 70 to 75 per cent. Plain wire is quoted at 2.65c, Worcester.

New York, Jan. 25.—Prices on wire and wire nails continue to reflect some concessions. On nails the current market ranges from 2.60c to 2.65c, base, Pittsburgh, with 2.55c having been done in exceptional instances. On wire the usual price continues 2.50c, base, Pittsburgh, but there have been sales at lower, particularly in New England. Sales have been made at 2.45c and 2.42½c, base Pittsburgh. It is estimated here that operations at wire and nail manufacturing plants throughout the country now range from 50 to 55 per cent of capacity.

Pittsburgh, Jan. 25.—Improved conditions already noted in connection with wire products are expected to continue at least through February and possibly through March. It is during the first three months of the year that wire products manufacturers usually expect to obtain the best business of the year, and 1927 will hardly prove an exception. Already many jobbers have completed inventories and are increasing stocks accordingly. Several mixed carload orders are comming through each day to each of several producers in this territory. Manufacturers utilizing wire also are ordering more frequently but so far wire mill operations have not reached an average higher than 50 per cent. Base prices are maintained by all the manufacturers here, 2.50c on wire and 2.65c on wire nails.

A new reducing mill recently was installed at the Detroit Seamless Steel Tubes Co., Detroit, increasing capacity about 15 per cent.

Bolts, Nuts, Rivets

Prices Hold Firmly but on Rivets Concessions Are Made

NUT AND BOLT PRICES, PAGE 278

Pittsburgh, Jan. 25.—Growth in number as well as size of nut, bolt and rivet orders makes producers here feel more encouraged over prospects. Prices of nuts and bolts are holding, but rivet levels still are weak and since some still are obtaining small lots at 2.60c, a wide range of quotations is current in the open market because large lots are available at 2.35c. Between 500 and 1000 tons recently was represented in an order placed by a car builder at 2.35c.

New York, Jan. 25.—Consumers in quite a few instances are obtaining the extra 5 per cent by ordering bolts and nuts in carloads. The usual price to consumers is 50, 10 and 10 off the list, to which an additional 5 per cent is added for specifications in carloads.

Cleveland, Jan. 25.—Operations of bolt, nut and rivet manufacturers here are at a pace little changed from that of last week. Demand so far this month has not quite measured up to expectations. One interest reports operations to be at about 55 per cent.

Chicago, Jan. 25.—Jobbers and manufacturing lines are increasing slightly their specifications for bolts and nuts. Farm implement makers are specifying steadily, but not at the rate expected. Prices are steady, except on large rivets, which show weakness.

Strip Steel

Price Cutting Continues but Much Business is Booked at Market

STRIP PRICES, PAGE 278

Pittsburgh, Jan. 25.—Strip steel business appears to run the gantlet among price cutters. Buyers with attractive tonnages are able to develop levels so low that they are out of line with known production costs in many instances, particularly where billets are purchased at $35, so that it is possible this condition will not long obtain. Cold strips are quoted at 3.00c to 3.40c, and hot strips at 2.10c to 2.20c here.

New York, Jan. 25.—Despite low prices which have appeared in some instances, not all business in cold-rolled strip steel is being taken at concessions. A large number of orders are being taken at 3.40c, base, Pittsburgh, which, less quantity deductions, results in a net price of 3.25c to the consumer. The 3.00c price has been done on quite a few tonnages and, in some cases as low as 2.90c.

Hot strip continues to be quoted from 2.00c to 2.30c, base, Pittsburgh, for wide widths and 2.20c to 2.50c for narrow. In instances recently improved rolling facilities, resulting in a hot strip with better surface, have permitted the sale of hot strip for use in place of cold strip.

Philadelphia, Jan. 25.—Hot strip reflects more stability and 2.10c for wide and 2.20c for narrow is general though consumers have been able to place large tonnages at 2.00c flat. In some cases mills recently disregarded differentials. In some cases also 2.00c was considerably shaded, indications pointing to one lot of 500 tons of narrow strip going at 1.50c base, Pittsburgh. This figure by no means represents the market. The usual range for coal strip is 3.00c to 3.25c, with occasional sales at 2.90c.

Chicago, Jan. 25.—Output of hot-rolled strip steel is increasing with a continued heavier demand from the automotive industry. Production is holding to the rate of the average monthly output of 1926. Prices are irregular, due to strong competition, and are about $2 a ton below recent levels. Cold-rolled strip is more active. Chicago delivered prices are 3.30c to 3.70c.

Cleveland, Jan. 25.—Hot strip steel has succumbed to the general market trend of declining prices in this district, and quotations have been marked down $2 a ton. Wide strip now is commonly quoted at 2.20c, Pittsburgh, with as low as 2.10c on attractive business done. Narrow sizes, under 6-inch, are quoted 2.40c, with 2.30c possible for attractive business. Demand has picked up slightly for immediate delivery, with indications of expected resumption of buying by automotive interests. Cold finished strip steel is weak at 3.15c, prices down to 3.00c, being determined by the attractiveness of the tonnage.

Cold Finished Steel

Larger Orders Being Received and Price Is Held Steadily

Pittsburgh, Jan. 25.—More action is encountered among users of cold finished bars now that inventory taking is practically completed. Orders are more numerous and individual tonnages have shown a consistent growth. As yet, operating schedules do not expand, the general average being about 60 per cent. It is claimed, however, that the base price, 2.40c, remains entirely stable.

Nonferrous Metals

Prices Sag with Demand Restricted in Most Lines—Output Continues Heavy—Underlying Conditions Little Changed

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin—New Spot	Straits Tin—York March	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Jan. 19	13.35	13.47½	12.85	66.37½	65.75	7.65	7.45	6.50	26.00	14.50	35.00
Jan. 20	13.25	13.45	12.85	66.62½	66.12½	7.50	7.40	6.55	26.00	14.50	35.00
Jan. 21	13.25	13.45	12.85	66.12½	65.62½	7.50	7.32½	6.52½	26.00	14.50	35.00
Jan. 24	13.25	13.45	12.80	65.50	65.00	7.50	7.30	6.42½	26.00	14.50	35.00
Jan. 25	13.25	13.37½	12.80	65.00	64.62½	7.47½	7.25	6.37½	26.00	14.37½	35.00

NEW YORK, Jan. 25.—Zinc has fluctuated violently despite more active buying during the past week, while other metals sagged with lack of demand.

Underlying conditions in the nonferrous metal markets have not changed, output continuing high in the world's principal producing fields, while new buying continues to lag, although shipments are not so bad as might be expected.

Copper—Buying of copper has been exceptionally light, scarcely sufficient to test the market, so that the price situation is indistinct. Most producers are holding at or near 13.37½c, Connecticut, but metal has been available for several days at lower prices, even below 13.25c. On the Midwest basis generally, 13.50c has been asked for electrolytic, with lake available at 13.40c and up.

Users are fairly well covered for the moment, on account of having bought early in the month. Most producers have resisted the weakening influence of the foreign market. Product prices have held unchanged despite light buying. Mills are operating at fair rates and able to make deliveries in a week or two.

Zinc—As the market crossed 6.50c East St. Louis for prime western on the way down, a large amount of buying developed. It had been hanging for some time. The price quickly responded to 6.55c and London recovered accordingly, but then the latter market broke, due to large offers and a pessimistic attitude there. World supplies are large and consumption is lagging with possible curtailment in output gossiped. The smelting margin on a ton of ore has been cut to $22, with ore at $42.

Tin—Buying has been active on some days and slack on others and the price has continued down hill. However, fluctuations have been within what is considered a narrow range in this metal. Prices are well under the December averages but higher than the 1926 averages. Spot and nearby positions now are only ½ to ¾-cent above futures, an unusually narrow spread. It is thought the statistics at the end of this month will be on the firm side without much change.

Lead—Buying has been fair on the East St. Louis basis but light in the East. The drop of 15 points in the price a few days ago was caused by competition for orders in this country more than weakness abroad, but the latter was a factor in causing buyers to hold off and continues so. Yet there does not appear to be any great abundance of stocks for immediate shipment. The American Smelting & Refining Co. today cut its price 10 points to 7.40c New York.

Aluminum—Not a great deal of buying has been done since the cut of 1-cent. In the open market 98 to 99 per cent metal is being quoted 25.80c.

Quotations given in the above table are corrected by *Daily Metal Trade.*

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	18.12½
Copper, hot rolled	21.75
Zinc, (100-pound base)	11.00
Lead full sheets (cut ¼c more)	11.25
Aluminum, bright flat, up to 10 gage	35.50
SEAMLESS TUBES	
High brass	23.00
Copper	23.75
RODS	
High brass (round ⅝ to 2½-inch)	15.87½
Naval brass	18.62½
WIRE	
Copper, small lots	15.12½
High brass	18.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.50 to 8.75
Chicago	8.50 to 8.75
Cleveland	9.00
HEAVY YELLOW BRASS	
Chicago	7.00 to 7.25
Cleveland	7.00 to 7.25
ZINC	
New York	4.25
Cleveland	4.50 to 4.75
HEAVY COPPER AND WIRE	
New York	10.62½ to 10.87½
Boston	10.00 to 10.50
Chicago	9.50 to 10.00
Cleveland	10.25 to 10.75
RED BRASS BORINGS	
New York	7.50 to 7.75
YELLOW BRASS TUBING	
Cleveland	7.00 to 7.50
LIGHT COPPER	
New York	8.75 to 9.00
Chicago	9.50 to 10.00
Cleveland	9.50 to 9.75
LIGHT BRASS	
Boston	5.50 to 6.00
Chicago	6.00 to 6.25
Cleveland	5.50 to 6.50
ALUMINUM	
Clippings, Cleveland	20.00 to 21.00
Borings, Cleveland	11.50 to 13.00
Cast, Cleveland	16.00 to 16.50
Cast, Boston	14.25 to 14.75

Secondary Metals

Remelt aluminum No. 12	21.00
Brass ingot, 85-5-5-5	11.50 to 11.75

Coke By-Products

Paint Trade Takes Distillates But Rubber Uses Drag

New York, Jan. 25.—Paint and lacquer manufacturers show more interest in light oil distillates. The rubber industry, however, is not coming in the market to the extent expected at the beginning of the month, reflecting perhaps the relatively slow start in the automotive field.

Pure and 90 per cent benzol is 23 to 24 cents, works, per gallon in tank car lots and 29 cents in drums;

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.23 to $0.24	
90 per cent benzol	0.24	
Toluol	0.35	
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22

Per Pound at Producers' Plants

Naphthalene flakes	0.05 to 0.07
Naphthalene balls	0.06 to 0.08

Per 100 Pounds Delivered

Sulphate of ammonia	2.47½	

toluol and solvent naphtha, 35 cents, works, in tanks and 40 cents in drums; and commercial xylol 36 cents in tanks and 41 cents in drums.

Naphthalene is in better demand, the drug trade contracting for its spring requirements. Flakes may be quoted at 5 to 7 cents, works, and balls at 6 cents. Sulphate of ammonia is holding at $2.45 to $2.50, delivered, for domestic demand and $2.50, port, in double bags for export.

General-American Takes Over Standard Tank

Sharon, Pa., Jan. 25.—Control of the Standard Tank Car Co., Sharon, has passed from Keith Car & Mfg. Co., Sagimore, Mass., to General-American Tank Car Corp., Chicago. No major changes in operations are planned. Recent orders assure steady operations for several months. For the present the office of president will not be filled. Samuel Laud, Chicago, is vice president and secretary, and G. H. Fleming, Sharon, vice president and treasurer.

Warehouse

Demand Improving but Still Spotty—Structurals Active in New York—Prices Show Further Weakness

SALES from iron and steel warehouses during the past week showed improvement over the preceding period, but in many districts continue spotty. Structurals in particular are in active demand in New York. Sheets, although more active, are lower in price, jobbers in Pittsburgh especially revising quotations in line with recent mill cuts. Strip quotations also have been altered.

Jobbers in the New York metropolitan district describe business in January as better than normal, but not brisk. Exceptions are to be found in some lines, notably structurals, demand for which has been holding up surprisingly.

Warehouse interests in Pittsburgh are cheerful over prospects although orders are light. Recent weakness in mill prices on sheets has extended to jobbers. Blue annealed, black and galvanized sheets have been marked down $2 per ton, ruling quotations now being 3.30c, 3.85c and 4.70c, respectively, on the three grades. Fair sized quantities of coke tin plate continue to be sold. Terne plate also is active and prices are firm at $5.25 on stock with 40-pound coating.

While still below the corresponding period a year ago, sales of iron and steel goods from St. Louis warehouses have developed some improvement. Demand for building materials, particularly reinforcing concrete bars and standard structural shapes, has picked up somewhat in the South. Sheets are slow, sales being confined chiefly to small lots for prompt delivery. An exception was the ordering of a round tonnage of galvanized sheets by an Iowa manufacturer of washing machines.

Some recession in buying was noted by Chicago district warehouse interests during the past week, a tendency more noticeable in sheets than in other standard products. Mill softness is reflected in weakening jobbers prices, but no alterations have been made. The present volume of buying is expected by some jobbers to continue through but not beyond first quarter. Buying in the warehouse markets at Detroit continues slow,

(*Concluded on Page* 293)

Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.15c
Ft. Worth	3.75c
Los Angeles	3.30c
New York	3.24c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.80c to 4.06c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
Ft. Worth	3.75c
New York	3.24c
Philadelphia	2.90c to 3.20c
St. Louis	3.15c
Tulsa	3.80c to 4.06c

REINFORCING BARS

Boston	3.265 to 3.50c
Buffalo	3.30c
Chicago, billet	2.25c to 2.60c
Chicago rail steel	2.00c
Cincinnati	3.20c to 3.30c
Cleveland	2.50c to 3.00c
Detroit	3.15c
Ft. Worth	3.50c
Los Angeles, C.L.	3.05c
Los Angeles L. C. L.	3.30c
New York	3.15c
Philadelphia	2.85c to 3.00c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	2.85c
San Francisco, L. C. L.	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.50c to 2.60c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.25c
Ft. Worth	4.50c
Los Angeles	3.20c
New York	3.34c
Philadelphia	2.65c to 3.20c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.80c to 4.16c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleveland, 3/16-inch	3.225c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Ft. Worth	4.50c
Los Angeles	3.20c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.75c to 3.20c
Philadelphia, 3/16-inch	2.95c to 3.40c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.80c to 4.16c

NO. 10 BLUE ANNEALED SHEETS

Boston 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	4.00c
New York	3.89c
Portland	4.25c
Philadelphia	3.35c to 3.50c
Pittsburgh	3.30c
San Francisco	4.00c
Seattle	4.25c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.05c to 4.25c

NO. 24 BLACK SHEETS

Boston	5.10c
Buffalo	4.30c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.80c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.00c
New York	4.35c
Philadelphia	4.20c to 4.35c
Pittsburgh	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	4.90c
St. Louis	4.45c
St. Paul	4.20c
Tulsa	4.75c

NO. 24 GALVANIZED SHEETS

Boston	5.80c
Buffalo	5.15c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.65c
Detroit	5.05c
Ft. Worth	5.75c
Los Angeles	5.75c
New York	5.10c
Philadelphia	5.15c to 5.30c
Pittsburgh	4.70c
Portland	5.75c
San Francisco	5.65c
Seattle	5.75c
St. Louis	5.25c
St. Paul	5.15c
Tulsa	5.55c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.80c
Ft. Worth	4.40c
Los Angeles	4.05c
New York	3.99c
Philadelphia	3.75c
Pittsburgh	3.50c to 3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.65c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c
Pittsburgh	4.40c to 4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.90c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100 inch, 500-lb. lots	6.00c
Buffalo	6.25c
Chicago	5.85c
Cincinnati	7.15c
Cleveland, over 500 lbs. lots	5.95c
Detroit	6.20c
New York	5.75c
Philadelphia	5.50c
Pittsburgh	6.20c to 6.30c

FOREIGN IRON AND STEEL

New York duty paid

Swedish, hollow drill steel	15.00c
Swedish iron bars round	6.25c
Flats and squares	6.50c

WELDED PIPE

Discounts from warehouses, New York City Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—28	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6-inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	— 1	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 6
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Production and Distribution Changes Set Pace for Steelmakers

James A. Campbell Points to Cumulative Effects of High Freight Rates, High Wages and Burdensome Taxes

CLEVELAND, Jan. 25.—High freight rates, high taxes, high wages, forcing new methods of manufacture and distribution are reshaping the course of the American iron and steel industry, James A. Campbell told a large group of manufacturers, financiers and business men here last night. The president of the Youngstown Sheet & Tube Co. said millions of dollars are being spent in making improvements merely to reduce costs of output. The occasion was a banquet, second of a series, given by the Guardian Trust Co. to business men.

"Both production and distribution in the steel industry are changing so rapidly that it is hard to keep pace with them," said Mr. Campbell. "Almost over night it may become necessary to scrap costly equipment and replace it with new machinery, and new methods are being constantly introduced with the object of lowering costs and increasing production. These changes and replacements are extremely costly, owing to the high cost of machinery and labor. They are necessary, if we are to keep our plants on a competitive basis. The Youngstown Sheet & Tube Co. has just completed expending $25,000,000 in this direction and has authorized the expenditures of $4,500,000 additional.

Steel Industry a Barometer

"The steel industry is a basic industry, that is, its principal function is to furnish materials for other industries. It is largely for that reason that it has been regarded for many years as an accurate barometer of business conditions for the whole country. When the farmers, railroads, automobile factories, machine shops and the thousand and one other activities using steel as raw materials or tools are active, the steel industry is prosperous and its prosperity indicates prosperity in all other industries. Likewise, when these industries slow up for any cause, the effect is first felt in the steel industry. As far back as the beginning of last November, we felt the lull in business that has become noticeable in most other industries at this time, and we will probably be the first to discover signs of renewed activity.

"Bankers have, of course, exceptional facilities for keeping in touch with business activity and they generally do so. With their ability to know financial conditions existing in all parts of the country they have a great advantage, because financial conditions have a great deal to do with business conditions. Nevertheless, I believe that a large steel company, doing business all over the United States can sense the business trend more quickly and accurately than any other institution. When collections begin to slow up, orders are not placed freely, and specifications against orders already on the books are held back, we know at once that there is something wrong.

"Also we like to keep in touch with the bankers, for their business is to know of such matters, and they are not at all slow to make use of all the information they can get. This information is reflected in their attitude toward credit, and there attitude has a great deal to do with business conditions. Because of these facts I do not believe that the steel industry has as much effect on the business of the country as a whole, as business conditions have on the steel industry. If business is generally good the steel industry will be active; but if it is bad our industry will feel the effect as much or even more than any other.

"We are now passing through a period of change and development in business, and this is particularly true of the steel industry. Both production and distribution are changing so rapidly that it is hard to keep pace with them. Almost overnight it may become necessary to scrap costly equipment and replace it with new machinery, and new methods are being constantly introduced with the object of lowering costs and increasing production. These changes and replacements are extremely costly, owing to the high cost of machinery and labor. They are necessary, however, if we are to keep our plants on a competitive basis.

"Railroad freight rates have become a serious problem in the steel industry, in which, perhaps more than in any other, transportation by rail is involved. The high rates on finished materials have had the effect of localizing markets and restricting the territory in which steel companies can compete for business, and they add enormously to the cost of manufacture at all inland plants, because of the volume of raw materials on which they must be paid. By restricting markets they have made it necessary to diversify production in order to permit the manufacture of products that can be sold in restricted territories. Under these conditions inland steel companies find it necessary to make new finished products in order to use the steel produced by their plants. This requires new construction, which otherwise would not be necessary.

"Another problem that must be faced is competition from abroad. During the past year America has loaned to Germany and other foreign countries more than $1,000,000,000 to rehabilitate their industries, and they are beginning to show their appreciation of this favor by shipping into this country considerable quantities of iron and steel at about what it costs to produce such products here. The ocean freights from Antwerp and Hamburg to the Pacific coast are less than half the rates on the same material from our steel centers. Of course, when we pay our labor about three times as much as the same labor is paid in Germany this is to be expected, and it probably will continue until wages abroad are raised, or until wages in this country are lowered. I believe the time will come when some adjustment will have to be made, and it is my opinion that eventually wages will rise on the Continent and be lowered here to some extent. If wages are ever lowered in this country, however, it must be done in all lines, and the cost of living will be reduced accordingly.

"According to the census of 1920 there was invested in the basic steel industry in the state of Ohio the sum of $722,299,779. In the steelworks of the state, including only by-product coke ovens, blast furnaces and rolling mills 102,626 men and women were employed in steel plants and offices.

Ohio a Heavy Producer

"No accurate figures are available for the present time, but it seems safe to say that in Ohio alone more than $1,000,000,000 are invested in the steel industry, and more than 130,000 persons are profitably employed in it. If we add the investment in ore, coal and limestone properties operated in connection with the steel industry the estimate of the labor and capital involved will be greatly increased.

"I do not like to talk about our own company, but since it is the only one of which I have any figures perhaps you will allow me to give you some information illustrating what has been said about the steel industry. These figures are approximate.

"During the year 1926 we deposited in various banks the sum of $182,000,000. Our payrolls amounted to $41,100,000. We paid in railroad freights on outbound and inbound materials, not including switching charges and water freights, $31,000,000. Our state and local taxes for 1926 amounted to $2,329,467. To transport

our raw materials and finished products during the year we handled 440,000 loaded cars. At the close of 1926 our total assets were in round figures $300,000,000.

"These figures could be duplicated from the books of any successful steel company in totals proportionate to its size. They point out the value of such an enterprise to a community and suggest that it deserves appreciation and fair treatment in the matter of taxation and regulation, both of which are sometimes excessive and burdensome, especially under the highly competitive conditions of the steel business at this time. For instance, our taxes at Youngstown has been more than twice as much per ton of output as those paid by companies in other states with which we must compete. This condition has been modified, however, and we are to have relief in the near future."

Operators and Miners Prepare for Struggle

Following the conference of coal mine operators of the central competitive field in Toledo Jan. 19, the United Mine Workers began their convention in Indianapolis, Jan. 25. The operators from Illinois, Indiana, Ohio and western Pennsylvania adopted a resolution proposing a continuously competitive, or sliding scale to substitute for the Jacksonville agreement which expires March 31. When the mine workers met John L. Lewis, president, essayed a gesture for a wage increase.

Meanwhile, several leading operators have reduced wages 20 per cent. The Pittsburgh Coal Co., W. J. Rainey Inc., and others put back the day labor rate to the former wage scale of 1922, or $6 a day. Large consumers of coal are increasing their stocks, in anticipation of a strike April 1.

Warehouse Prices Weaker

(*Concluded from Page* 291)

although a gradual improvement is noted. Most current demand consists of small orders but the aggregate is fairly satisfactory. Except structural products, which continue somewhat slow, all grades share present demand.

Demand eased off in the past week, according to Cleveland jobbers. Tonnage was less than in the preceding week. Sales have fallen off in number, although individual tonnages are steady in size. Prices generally are firm. The slump in cold finished strip prices in other districts has not been reflected yet among local jobbers where the leading seller maintains a firm 5.95c level on 500-pound lots. To harmonize with recent mill revisions a prominent sheet jobber here is expected to bring out a new list next week.

Steel Corporation

Earnings in 1926 Greatest for Any Peace Time Year

Net earings of the United States Steel Corp. in 1926 totaled $199,004,741. They were the largest for any peace time year in the company's history and the greatest for any year since the war-period of 1918. The earnings compared with $165,188,090 in 1925 and with $152,937,130 in 1924. The year's surplus was $55,783,238 against $29,632,442 in 1925 and $24,234,092 in 1924. The comparative income account for the year follows:

	1926	1925
Net Earnings	$199,004,741	$165,188,090
Sinking Fund	11,049,836	10,623,625
Interest	17,228,668	17,761,389
Premium	1,242,984	1,102,769
Total Deductions	82,674,373	74,876,839
Adjustments	253,720	122,041
Net Deductions	82,420,653	74,754,798
Net Income	116,584,088	90,433,292
Preferred Dividends	25,219,677	25,219,677
Common Dividends	35,581,173	25,415,125
Extra Com Div.		10,166,048
Surplus	55,783,238	29,632,442
Special Appropriation	30,000,000	25,000,000
Final Surplus	25,783,238	4,632,442

Earnings for the fourth quarter of 1926 showed an increase over both the preceding three months and the corresponding period of 1925. The net was $53,502,525 against $52,626,826 in the September quarter and $42,280,465 in the last quarter of 1925. The comparative income account for the fourth and third quarters of 1926 and the fourth quarter of 1925 follows:

	4th Quar. 1826	3rd Quar. 1926	4th Quar. 1925
Net Earnings	$53,502,525	$52,626,826	$42,280,465
Depreciation	15,201,474	13,548,171	11,478,616
Sinking Fund	2,786,745	2,801,090	2,704,941
Bond Premium	361,734	293,750	294,548
Interest	4,255,608	4,273,910	4,390,941
Total Deduc...	22,605,561	20,916,921	18,868,332
Adjustments	253,720		122,041
Ned Deduc.....	22,351,841	20,916,921	18,746,291
Net Income..	31,150,684	31,709,905	23,534,174
Prf. Div.	6,304,920	6,304,919	6,304,920
Com. Divs.	8,895,294	8,895,293	6,353,782
Ex. Com. Div			6,333,960

The record of earnings by months reflects the slowing down in operations for December. The net for the final month of the year was $16,365,455 against $18,144,656 in November and $18,992,414 in October. The earnings by months for the years 1926, 1925 and 1924 follow:

Oct.	$18,992,414	$14,591,975	$12,236,014
Nov.	18,144,656	14,210,992	8,903,576
Dec.	16,365,455	13,477,498	9,622,641

The directors declared the regular dividend of $1.75 a share each upon the preferred and common stocks. The stock dividend of 40 per cent declared by directors remains to be authorized by stockholders at their annual meeting in April.

Changes Main Offices

Aetna-Standard Engineering Co., effective Jan. 31, will establish its main offices at the Realty Trust building, Public Square, Youngstown, O. The new offices follow the merger in November of the Aetna Foundry & Machine Co., Warren, O., and the Standard Engineering Co., Ellwood City, Pa. Both plants at Warren and Ellwood City are engaged in building steel mill equipment.

Pig Iron Prices Easier

(*Concluded from Page* 279)

for a Columbus, O., melter. An Indiana foundry placed 2000 tons of malleable. Sales booked by furnace companies with headquarters here aggregated during the week 20,000 tons. Demand is coming principally from Ohio, Indiana and southern Michigan cities. The price for delivery in southern Michigan is steady at $19.50, furnace.

Chicago, Jan. 25.—Pig iron prices are 50 cents lower than a week ago, being $20.50 to $21, base. Several sales of foundry and malleable have been made at $20.50. Crane Co. is reported to be closing on 2500 tons of foundry iron. Competition is keen. A Kalamazoo foundry is inquiring for 2000 tons of foundry iron for February, March and April. Spot sales are improving in the Chicago district. Some iron in the yard of Thomas Furnace Co., Milwaukee, may be offered shortly. Reports are heard that the Thomas furnace, blown out nearly three months ago, may be relighted following a reorganization.

Cincinnati, Jan. 25.—Competition of lake furnaces for pig iron business in this territory continues to shut Ironton producers out of much of the southern Ohio market. The freight advantage of Ironton over lake furnaces is $1. With lake furnaces apparently quoting under $18, furnace, in some instances Ironton producers are high by $1 or more. The reduction in Birmingham iron to $18 has proved hampering at Louisville. Inquiry for pig iron is less active than a week ago, but fairly brisk. The melt has not picked up as was expected for January.

St. Louis, Jan. 25.—Pig iron is slow, as buyers seem confident it will be possible to get iron when needed. This is emphasized by recent addition to stocks in producers' hands and increased efforts of blast furnace interests to secure tonnage. During the week there has been a slight pickup in buying, total sales reported being approximately 6000 tons. St. Louis Coke & Iron Corp. booked 5800 tons. Small tonnages of southern iron have been placed at $18, Birmingham, and inquiries are pending for about 3000 tons. Quotably prices are steady, but there are reports of concessions to meet competition.

Birmingham, Ala., Jan. 25.—Furnace interests have been selling pig iron at $18 and now have a good tonnage on books. Deliveries are in excess of the make. By March 1 it is estimated three more blast furnaces will be in operation in this district.

Initial patents on alloy steel containing manganese were taken out in 1799.

Harris & Ewing

Steel Treaters Meet in Washington

CONVENING for the first time in the Capital City, the American Society for Steel Treating held its winter sectional meeting at the Mayflower, Washington, Jan. 20-21. Selection of this city as a meeting place was most appropriate for in the Washington-Baltimore district is situated an unusual scope of metallurgical activity, both commercial and scientific. The bureau of standards, for example, is engaged in many lines of research most intimately related to the production, fabrication and heat treatment of metals.

The meeting, which lasted two days, followed the customary plan of combining technical sessions with inspection trips. Sessions were conducted on Thursday and Friday mornings and Friday evening. A dinner was served on Thursday evening. Among plant visitations of unusual interest were those to the Washington navy yard on Thursday afternoon and the bureau of standards on Friday afternoon.

Attendance at the meeting was somewhat below average, due to Washington's distance from some of the more important iron and steel centers, nevertheless, the quality of technical contributions was up to the usual high standard of previous sectional meetings. Notable among the papers were two dealing with normal and abnormal steels, one on nonmetallic inclusions in steels and another on the centrifugal casting of steel. The topics of centrifugal casting and normality of steel were subjected to considerable discussion.

At a meeting of the board of directors held on Wednesday, numerous matters of routine business were conducted. In addition, much new business was introduced, including the reclassification of membership, appropriation of funds for metallurgical extension work and preparation of nonferrous data sheets and expansion of other activities. Reports showed that the society further strengthened its assets during the last year. Dr. Zay Jeffries was selected Campbell memorial lecturer for 1927. The spring sectional meeting will be held in Milwaukee, May 19-20.

Progress was made in the matter of standard heat treatment definitions when committee A-4 of the American Society for Testing Materials, approved with minor change, the proposals which for two years have been in joint committee. Early action by the steel treaters is expected.

Reviews Metallurgical Activity Near Capital

FORMAL opening of the first session on Thursday morning in the ballroom of the Hotel Mayflower was the privilege of President J. F. Harper, Allis-Chalmers Mfg. Co., Milwaukee, who extended greetings on behalf of the society and then introduced J. G. Yaden, president, Federation of Citizens' associations, Washington. The latter extended to the guests an official welcome to the Capitol City.

These preliminaries concluded, the technical program was started by Chairman E. C. Bain, metallurgist, Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., who introduced Emil Gathmann, president, Gathmann Engineering Co., Baltimore, for presentation of a paper, "A Review of the Metallurgical Activities of the Washington-Baltimore District." The author pointed out that metallurgical operations of this territory date back to 1718 and have since grown to tremendous proportions, at present covering all known fields of endeavor. Work being done by the United States naval gun factory and the bureau of standards was mentioned as particularly notable because of the wide research programs.

"Wear Resistance of Cutting Edges of Blanking Dies and Shear Blades," was the title of a second paper by W. J. Merten, metallurgical engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Effect of shearing and blanking of sheets and plates on shear blades and dies when the steel is covered with hammer or roll scale, or when an intensely hard and abrasive constituent is irregularly but profusely scattered or dispersed through it was discussed. Mr. Mer-

ten concluded: 1. Application of highly viscous lubricants aids performance and lessens abrasion or dulling of cutting edges by preventing powdering and spreading of hard and abrasive constituents of sheets; 2. uniformly and fully hard die parts offer many advantages regarding quality of blank produced as well as from a quantitative production standpoint; and 3. plastic deformation not evidenced by burr formation is produced by use of soft punch parts, which deformation may at times be more detrimental than a more localized drag resulting in a burr.

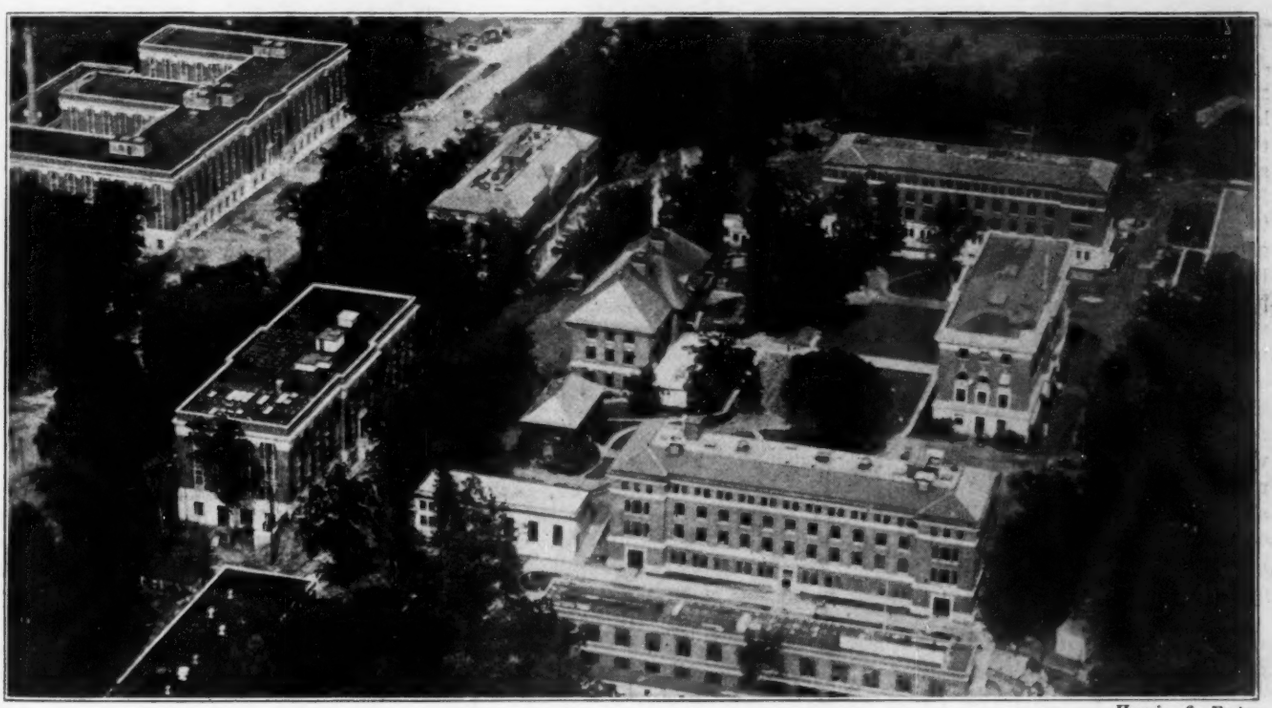
In the final paper at this session, G. W. Quick, assistant metallurgist, and L. Jordon, chemist, bureau of standards, Washington, discussed, "Iron-Carbon-Vanadium Alloy for Brinell Balls." Mr. Quick reported that a special iron-carbon-vanadium alloy containing 2.9 per cent carbon and 13 per cent vanadium, heat treated, work hardened and tested against steels of about 700 brinell, flattened only about one-half as much as Hultgren balls and one-fifth as much as ordinary brinell balls. It was pointed out, however, that the difference in flattening between these special balls and Hultgren balls does not affect appreciably the hardness number of steel up to 700 brinell. A. H. d'Arcambal, Pratt & Whitney Co., Hartford, Conn., stated tests he had conducted showed that on hardened tool steel the ball in the brinell test left evidence of strain in the metal, whereas the Rockwell test did not. He suggested that in the future the brinell method might be used only on the softer materials and Rockwell on the harder. Another speaker agreed that might be true but that there are so many occasions when an extremely close check is required, the brinell test must be resorted to. Other speakers also felt that the brinell test is necessary.

Centrifugal Casting of Steel Creates Interest

UNUSUAL interest was attached to the opening paper at the Friday morning technical sessions, this contribution being "Centrifugal Casting of Steel," by Leon Cammen, associate editor of *Mechanical Engineering* and consulting engineer, New York. Divided into two parts, this paper discussed in the first section the already familiar subject of centrifugal tube casting, giving its present and prospective field of application and limitations, particularly where the cast tube competes with tubing made by the piercing process. The second part was devoted to the newer development of centrifugally casting bars. The author pointed out that this method produces superior metal at a cost estimated to be $3.50 to $8.50 less than by present processes. Mr. Cammen briefly described the mechanical and metallurgical features of centrifugal casting, using lantern slides to show the machinery.

As might be supposed this paper provoked much discussion. G. A. Dornin, Gathmann Engineering Co., Baltimore, stated that with the single exception of seamless tubing, it has been the custom to cast steel in ingot form and then by rolling or hammering to reduce to blooms, billets, bars, etc. Ingots are believed to have interstices between the crystals as cast and the hammering is considered necessary to eliminate these spaces. Dr. H. W. Gillett, head, division of metallurgy, bureau of standards, Washington, chairman of the session, suggested that to make a fair comparison between the centrifugal casting and ingot casting, one should consider the difference in metal freezing rates. This suggestion resulted in a somewhat lengthy consideration of cooling rates and their effects, with numerous speakers expressing opinions.

Mr. Cammen answered numerous questions which the paper had created. Included in information brought out was the fact that in centrifugal casting the metal can be poured relatively



Harris & Ewing

The United States bureau of standards as seen from the air. Members of the American Society for Steel Treating were conducted through the research and testing laboratories of the bureau on Friday afternoon.

cold. In experimentation, the first three-fourths of the ladle is poured into ordinary ingots and the last one-fourth into the centrifugal machine equipped with a large spout to receive the metal rapidly. It was evident that much of the misunderstanding over cooling rates was due to the fact the most speakers were comparing the cooling of full-size ingots with the cooling of bars not exceeding a few inches in thickness.

Concluding this session, Dr. C. H. Herty Jr., physical chemist, bureau of mines, Pittsburgh, read a paper, "Fundamental Research in Steel Manufacture." Classifying problems in the making of steel, the author pointed out that fundamental research is intricate with these problems considerably involved. The paper, therefore, was confined primarily to slag-metal reactions, particularly the formation and elimination of nonmetallic inclusions formed from manganese, silicon and aluminum. Dr. Herty was of the opinion that the problem of solid nonmetallic inclusions is an important one to the steel manufacturer and suggested a solution along two main lines, namely: 1. The effect of inclusions on the rolling and service quality of steels, with particular regard to the amount and type of the inclusion present; and 2. the formation and elimination of inclusions. The speaker was highly complimented on his work by various speakers.

From the steel manufacturer's viewpoint, normality of steel is of great importance, consequently the meeting on Friday evening was devoted to this subject. Two exceptional papers were read and discussion was lengthy and in some cases involved. Under the skilful chairmanship of Dr. G. K. Burgess, director of bureau of standards, Washington, assisted by P. E. McKinney, chief metallurgist, naval gun factory, Washington, the discussion was directed into extremely helpful channels.

"Progress in Study of Normal and Abnormal Steel" was the subject of the first paper, prepared by S. Epstein, associate scientist, and H. S. Rawdon, physicist, bureau of standards, Washington, and presented by Mr. Epstein. The speaker defined the terms normal and abnormal and illustrated the characteristics of the structures in carburizing steel and tool steel. It was shown that under certain quenching conditions abnormal steel is more prone to give soft spots than normal steel, but that with drastic quenching in brine or a sodium hydroxide solution, it is possible to prevent formation of soft spots in both normal and abnormal steel.

Normality and abnormality were shown to have their origin in the deoxidation procedure of steelmaking and that in particular additions of aluminum and ferrovanadium in the mold produced abnormality. Numerous slide of photographs were used as illustrations.

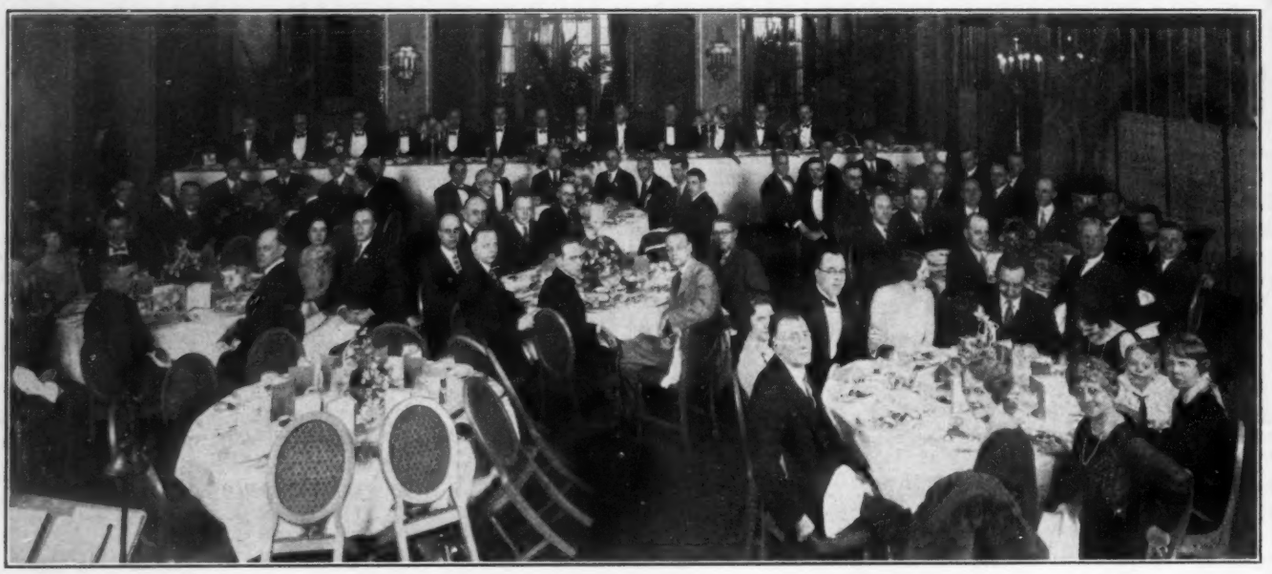
The second paper, "Normality of Steel," was presented by John D. Gat, metallurgical engineer, Central Alloy Steel Corp., Canton, O. The purpose of this contribution was to arrive at a better understanding of the term "normality of steel," and properties possessed by steels classified as abnormal. Experiments were conducted to demonstrate the behavior of steels having different grain size and amounts of segregated cementite, particular stress being laid upon the properties of "cementite lining" present in abnormal steels. Mr. Gat arrived at the conclusion that resistance to uniform hardening is caused by high oxygen content forming a eutectoid alloy with the constituents of austenite.

A written discussion submitted by G. R. Brophy, metallurgist, General Electric Co., Schenectady, N. Y., complimented Mr. Epstein and Mr. Rawdon on their lengthy research, pointing out that industry is in need of more information on the subject. Mr. Brophy reported a series of tests on the same subject which indicated that soft spots are produced by the clinging of vapor to the metal surfaces during quenching. In abnormal steels, more vapor clings to the surface of the metal and consequently more soft spots are produced.

W. J. Merten also presented a written discussion on the same paper and likewise reported an investigation which tended to check the conclusions of Mr. Brophy. On certain points, Mr. Merten disagreed strenuously with the conclusions of Mr. Epstein. It was the opinion of Mr. Merten that hot working of the metal and the introduction of strains had some influence on the production of soft spots.

In reply Mr. Epstein defended his conclusions most ably, pointing out that the research was far from completed and that the paper he had presented was in the nature of a progress report. The speaker again emphasized one point in his conclusion as follows:

Hardness surveys of carburized steels, graded typically normal and abnormal on the basis of their microstructure, after being given hard-



More than 100 members and guests attended the informal dinner at the Mayflower on Thursday evening

ening treatments, in pairs, have shown:

(a) With drastic quenching both types of steel hardened essentially the same, that is, no surface soft spots were found.

(b) With less drastic coolants, the abnormal steels showed a greater tendency toward soft spots, than did the normal steels regardless of the method of heating prior to quenching or of quenching.

Discussion of Mr. Gat's paper largely was of a question nature. It was pretty clearly brought out at this session that there is a need for better terms for "normal" and "abnormal." In view of conflicting opinions on normality, Dr. Gillett made an appeal for new designations which might better express the actual characteristics of the steels.

A most interesting program was arranged for the dinner served at the Mayflower on Thurday evening. W. M. Corse, consulting metallurgical engineer, New York, officiated as toastmaster, and first called upon President J. F. Harper for a brief comment on society affairs. Mr. Harper gave a resume of the board of director's meeting on Wednesday, at which the 1927 budget was approved. He said that appropriations for the year would permit expansion of service in all directions.

Pays Tribute to Industry

Mr. Corse introduced as the first speaker, Admiral C. C. Bloch, chief, bureau of ordnance, United States navy, Washington, who traced the development of warships and naval armament through various periods, stressing particularly the influence gained by the use of steel. Progress in steel manufacture always has resulted in progress in the design, manufacture and effectiveness of naval armament. In concluding, Admiral Bloch paid tribute to steelmakers and metallurgists who through their perseverance have brought steel to its present age of application.

Col. W. H. Tschappat, chief of technical staff, ordnance department, United States army, Washington, as the next speaker traced the development in design of military armament of the nation's land forces. Included in the equipment were small arms and machine guns, artillery rifles and howitzers, railway guns, tanks and tractors. The speaker made it clear that the superiority of American equipment has been largely dependent on the quality of steel manufactured and the vast knowledge of its treatment.

A plea for a more general acceptance of the newest method of air transportation, the airplane, was made by W. P. MacCracken Jr., assistant secretary of commerce, Washington, who made the claim that commercial aviation development of the United States leads the world. The speaker said that in Europe, commercial lines were failing by 40 per cent to make a return on the investment. In this country no difficulty is found in obtaining bids for air mail delivery. Mr. MacCracken pointed out advantages of aerial transportation and urged industry to accept the service.

Steel Treaters Plan Expansion Work for 1927

EXPANSION of service to members of the society was made certain by acts of the board of directors at its regular meeting on Wednesday morning. The budget adopted for 1927 calls for increased appropriations for various lines of endeavor and in some cases committees were enlarged to care for growing activities.

An unaudited financial report showed an excess of income over expenses of $28,000 in 1926, bringing the assets of the organization to $114,000, or about $30 per member. The budget for the year is $213,000, of which $23,000 will be returned to the 30 chapters. Money was appropriated for a group of college professors to prepare a syllabus on metallurgical education to be used as a guide for small trade school, arranging courses in heat treatment.

Plan for Nonferrous Work

Funds also were appropriated for the preparation of additional data sheets, including a series on nonferrous metals. The latter will be compiled under the direction of R. S. Archer, metallurgist, Aluminum Corp. of America, Cleveland. For the present these sheets will be placed in the society's handbook, but eventually will comprise a separate volume.

The board recommended to the constitution and by-laws committee that the associate member classification be abolished and associate members be given member classification. The Montreal group having grown to 100 members was given a chapter charter. Additional groups for Canton-Massillon, O.; Dayton, O.; Toledo, O.; Columbus, O.; and Birmingham, Ala., now are under consideration.

Hotel Statler was designated as convention headquarters for the Detroit convention, Sept. 19-23, 1927. It was announced that American Gas association has contracted for 9000 square feet of space at the exposition to be held at that time, against 6000 square feet at the Chicago show. May 19-20 were designated as the dates for spring sectional meeting to be held at Milwaukee. Action was taken to limit the sectional meetings in 1928 to one instead of two.

Standard definitions for heat treating terms were brought one step nearer when on Thursday morning committee A-4 of the American Society for Testing Materials met under the chairmanship of Prof. H. M. Boylston, head of department of mining and metallurgy, Case School of Applied Science, Cleveland, and with minor changes adopted the definitions which for about two years have been before the joint committee of the American Society for Testing Materials, American Society for Steel Treating and Society of Automotive Engineers. Early action by the standards committee of the steel treaters has been promised, thus the automotive engineers will be the only group not to have approved the work.

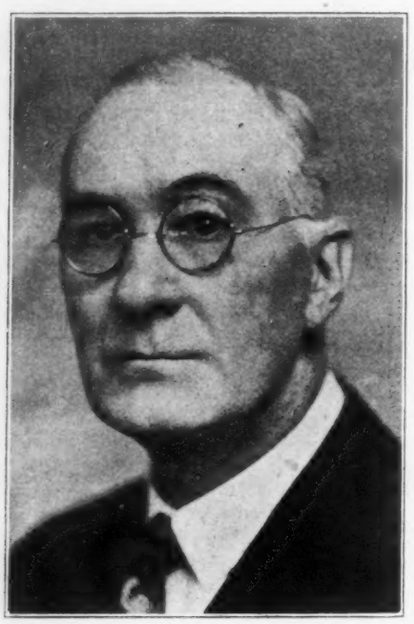
Extending Transatlantic Telephone Service

Rapid expansion of the American Telephone & Telegraph Co.'s transatlantic telephone service is noted. Within a week of the official opening Jan. 7 London could be reached from any telephone in New York state, and within two weeks, from any point in New England. Arrangements now are being made whereby any Bell system telephone in the country will be an overseas station.

A call to London is made the same as though the subscriber puts in a long distance call to a neighboring city. The voice travels by land wire and radio; apparatus costing $5,000,000 is used exclusively by the two persons conversing with one another. At present the hours for calling from the United States are 8:30 a. m. to 1 p. m.; in London this corresponds to 1:30 p. m. to 6 p. m. Ultimately the service will be available at all hours of the day. Business transactions involving millions of dollars have been made over the transatlantic telephone since the official opening.

Industrial Men in the Day's News

David R. Mathias, Retired After 40 Years in Rolling Mill Industry



TWO SCORE years in the rolling of steel is the record of service to industry which he terminated upon his resignation from the Joliet works of Illinois Steel Co.

HIS FATHER and two brothers completed a family which was devoted to the production of steel, all holding executive positions.

CHARITIES and civic enterprises have drawn his attention. Golf and fishing are his recreations, but an extensive program of travel was mapped out by him to follow his retirement.

UNWAVERING loyalty, hard work and a constant disposition to make friends and keep them have marked a career of 40 years and seven months in the iron and steel industry for David R. Mathias, retiring general superintendent of the Joliet works, Illinois Steel Co., Chicago. Still several years under 60, Mr. Mathias is leaving active service that has occupied most of his life to engage in some of the avocations that have beckoned to him during the busy two score years.

Possibilities of travel, the enjoyment of which Mr. Mathias contemplates while still in his prime, promise a further rounding out of his later years.

Mr. Mathias' life has been replete with hard work. His birth was of sturdy stock and he was bred in the atmosphere of steel rolling mills. His father, D. S. Mathias, belonged to the school of rolling mill men of a generation ago, who cast their lot wherever opportunity called, oftentimes leading them into distant fields.

Born in 1868, in Hamilton, Ontario, Canada, Mr. Mathias early in life came to the United States with his family. First his father located in Kansas City to work for a rolling mill there. Coming later to Chicago, the elder Mathias, and afterward his three sons, entered the employ of the North Chicago Rolling Mill Co., which later became a unit of the Illinois Steel Co.

The eldest son, David, saw his first service in the rail mill of this company as an inspector while still a youth of 18. In 1889 he was made superintendent of the rail mill and later became night superintendent of the South Chicago works. Not long afterward he was promoted to assistant superintendent of the open-hearth department, the plate mill and the slabbing mills. His next advancement was to superintendent of these departments, and in 1903 he became assistant general superintendent of the South Chicago works. On Nov. 11, 1903, he was appointed general superintendent in full charge of the Joliet works, taking the place of S. B. Sheldon, now vice president and general manager of the Minnesota Steel Co. For the past 23 years, Mr. Mathias has served in this capacity.

Mr. Mathias is a member of a family that served the iron and steel industry well. His father was at one time superintendent of the South Chicago works, and his two brothers, following their graduation from that plant, advanced rapidly in different fields of the industry. One brother, Thomas H. Mathias, for a number of years was with the Lackawanna Steel Co. in official capacity, retiring about the time the Lackawanna company was absorbed by the Bethlehem Steel Co. Another brother, William G. Mathias, at present is assistant to the vice president of the Tennessee Coal, Iron & Railroad Co., another subsidiary of the United States Steel Corp., and is located at Birmingham, Ala.

For years David Mathias has interested himself in charities and civic enterprises. These things helped him make up his mind to retire from the industry he loves while he still is young enough to follow with vigor the other pursuits that have interested him. Among these avocations is his directorship in one of the leading banks of Joliet. He also has been instrumental largely in paving the way for a fine new hospital in Joliet, the city which he has adopted as his home. Both Mr. and Mrs. Mathias also find traveling a pleasure, and together they plan a trip to the Hawaiian islands this winter. A trip to Europe which led also to Egypt several years ago, may have implanted this taste for seeing new things and places.

On Nov. 3 last, 150 officials, superintendents, assistants and associates of the Illinois Steel Co. held a farewell dinner for Mr. Mathias at Joliet. E. J. Buffington, president of the company, and T. W. Robinson, vice president, paid tribute to Mr. Mathias. In responding to the addresses, Mr. Mathias among other things said: "You have just two real friends in this world—your wife, if you are married, and if you are not married, your mother; and the other is the company you work for. If you take care of these two friends you will find all the happiness of the world."

Mr. Mathias is partial to golf but he also is fond of fishing, for recreation. He indulges in the latter sport at his summer camp in Michigan.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

JOHN F. STEVENS has been elected president of the American Society of Civil Engineers. Mr. Stevens is a railroad engineer who gained prominence by the discovery of the Marine Pass in the Rockies for the Great Northern railway. He also gained fame by serving as second engineer in the construction of the Panama canal. He has received the John Fritz gold medal and other distinctions for engineering accomplishment.

JOHN F. STEVENS

Arthur E. Morgan of Dayton, O., and John Clayton Hoyt, Washington, were elected vice presidents. The directors chosen were George L. Lucas and George J. Ray of New York, Frank O. Dufour of Easton, Pa.; Harry W. Dennis, Los Angeles; Con M. Buck, Topeka, Kans., and Jacob H. Brillhart, Dallas, Tex.

* * *

Edmond P. Burke, for the past year and a half connected with the Los Angeles Iron & Steel Co., Los Angeles, and prior to that for three years with the Truscon Steel Co. in Los Angeles, has resigned and again joined the sales organization of the Truscon Steel Co. at San Francisco, with offices at 604 Mission street. Mr. Burke is a graduate engineer of Columbia university, New York.

* * *

A. C. Zimmerman of the Symington Co., Rochester, N. Y., has been promoted to assistant general manager of the Gould Car Lighting Corp., also of Rochester. In addition Mr. Zimmerman will handle all electrical equipment problems of the Symington Co. interests including Gould Coupler Co. and Gould Storage Battery Co. Mr. Zimmerman was formerly maintenance superintendent of the Symington Co.

* * *

Ernest F. du Brul, general manager of the National Machine Tool Builders' association with headquarters in Cincinnati, has been named a member of a committee of representative business men to make a study of the fundamental statistical information to be gathered by federal, state and private agencies and to advise on the needs of market research to improve present data for commercial use. The appointment was made by Herbert Hoover, secretary of commerce.

* * *

Clem J. Stettler, for three years superintendent of the galvanizing division of the Dayton Pump & Mfg. Co., Dayton, O., has resigned effective Jan. 15, to become associated with the Muncie Galvanizing & Mfg. Co., Muncie, Ind., as president and general manager. Mr. Stettler designed and supervised the installation of the Dayton galvanizing plant.

Alfred M. Eyerman, formerly assistant superintendent suceeds him as superintendent. Mr. Eyerman was with the International Derrick & Equipment Co., Columbus, O., for a number of years and is a chemical engineering graduate of Ohio State university, that city.

* * *

G. H. Garcelon, formerly manager of the small motor engineering of the East Pittsburgh works, has been appointed manager of engineering of the East Springfield works of the Westinghouse Electric & Mfg. Co., in a reorganization to obtain a better concentration of engineering personnel and facilities at East Springfield. As manager he will have administrative charge of all engineering at this plant.

W. M. OLSEN

C. A. M. Weber has been appointed manager of the small motor engineering department, East Springfield works.

E. W. Denman has been made section head in charge of the fan motor section of the small motor engineer-

ing department. A. K. Phillippi will continue resident engineer of the radio engineering department.

Announcement is also made by C. E. Allen, district manager, St. Louis office of the Westinghouse company, that Graeme Ross has been appointed industrial division manager, B. W. Stemmerich transportation division manager, and J. J. Thomason central station division manager, all of the St. Louis office.

* * *

H. W. Moulder, for the past six years representative of Lamson & Sessions Co., at Chicago, now is associated with L. F. Cowell, for 18 years in charge of Kirk-Latty Mfg. Co. sales there, in supervision of the Chicago

H. W. MOULDER

office of the Lamson & Sessions Co., Cleveland, which some time ago combined with the Kirk-Latty Mfg. Co. Both companies manufactured bolts, nuts, cotter pins, rope clips, etc.

W. M. Olsen is manager of the Detroit office at 4-228 General Motors building. He had been with the Kirk-Latty company for 15 years, the latter part of which he was Detroit manager.

* * *

Donald G. Clark recently was elected a director of the Firth-Sterling Steel Co., McKeesport, Pa. He is eastern mnager of the company. He joined the Chicago agency of the company, E. S. Jackman & Co. in 1903, and from 1910-2 was resident manager in Pittsburgh. Upon his return from France in 1919 he took charge of the company's business in the East.

* * *

M. Imai, of the metals department of Mitsui & Co., 61 Broadway, New York City, left, Jan. 14, for this company's Osaka office. He will return to Japan by way of Siberia.

* * *

F. R. Fishback, president of the Electric Controller & Mfg. Co., Cleveland, and A. G. Smith president of the American Shipbuilding Co. have been elected directors of the Central National bank, Cleveland.

* * *

Charles D. Oesterlein, president, Oesterlein Machine Tool Co., Cincinnati, has been elected president of the Cincinnati Foreign Trade association, affiliated with the chamber of commerce of that city.

* * *

C. C. Hurlburt, formerly assistant sales manager for the Oil Well Supply Co. at Tulsa, Okla., has been appointed sales manager of Jos. Greenspon's Sons Iron & Steel Co. with headquarters in that city.

* * *

William A. Rogers, Buffalo, sailed from New York Jan. 12 for a cruise around the world via the southern hemisphere. Mr. Rogers retired as chairman of the Rogers-Brown Iron Co. in 1926 to devote his life to study and travel.

* * *

Carl S. Dixon has been appointed works superintendent of the works at Pittsfield, Mass., of the General Electric Co., Schenectady, N. Y., to succeed Arthur F. Blasdell, resigned. Mr. Dixon was born in Newfields, N. H., in 1883, and has been connected with the Pittsfield Works for the past 16 years.

* * *

Thomas A. Finn of the Worcester Foundry Co., Worcester, Mass., has been elected president of the Worcester County Foundrymen's association to succeed Henry P. Blumenauer, who has been president during the past two years. Milo H. Hamilton, of the Wells Chemical Bronze Works, Worcester, has been elected secretary.

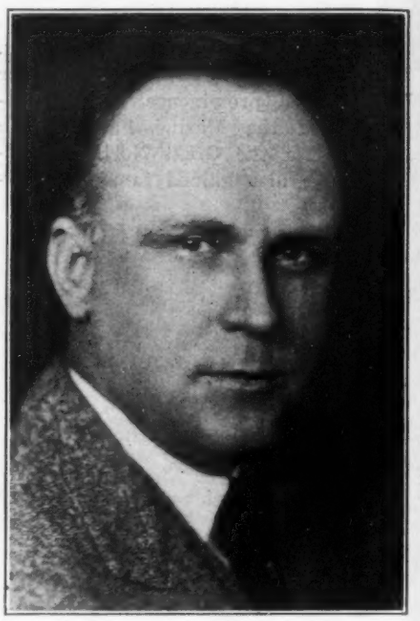
* * *

James Ward Packard, originator of the Packard automobile and former head of the company building that car, has donated $1,000,000 to Lehigh university, Bethlehem, Pa., for the erection of an electrical and mechanical engineering laboratory to be known as the James Ward Packard laboratory. Mr. Packard was graduated from Lehigh in 1884.

* * *

A. F. Stengel, sales manager of the Mystic Iron Works from the time the furnace at Everett, Mass., blew in during the fall of 1926 to date, has resigned effective Feb. 1 to take a position as sales representative at Buffalo for the Semet-Solvay Co., coke producer and seller. Previous to his association with the Mystic Iron Works at Boston, Mr. Stengel was for 17 years sales representative at Buffalo for Rogers, Brown & Co.

H. T. Outwater, formerly associated with the sales force of Rogers Brown & Crocker Bros. Inc., with headquarters in New York, has been appointed sales manager of the Mystic Iron Works to succeed Mr. Stengel. Mr. Outwater was associated with Rogers, Brown & Co. for 11 years previous to the consolidation of that company with Crocker Bros. Since then he has held a similar position



L. F. COWELL

with Rogers, Brown & Crocker Bros. Inc. In his new work he has charge of selling the bulk of the pig iron production of the new furnace at Everett, Mass., which has a rated capacity of 500 tons a day. His headquarters now are at 1 Federal street, Boston.

* * *

James Lyall Stuart, consultant engineer, Sewickley, Pa., has been appointed secretary of highways for Pennsylvania. He has supervised many of the most important construction projects in Pennsylvania and Ohio. He retired in 1918 from the Mellon-Stuart Co., Pittsburgh, as a construction engineer and since has devoted himself to consulting engineering. He was born at St. Louis, April 7, 1873, and educated in the schools of St. Louis and in Washing-

(*Continued on Page* 305)

British Steel Mills More Active

Competition from Continental Companies Keener—Order for 20,000 Tons of Rails for Finland Divided Between Belgian and French Makers—Germans Book 8000 Tons of Tubes for Brazil

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Jan. 25.—(*By Cable*)—British steel business is more satisfactory, mills having several months' bookings at firm prices. The Appleby Iron Co., subsidiary of the United Steel Co. is beginning to roll plates. A shortage of heavy steel is retarding improvement in the shipbuilding industry. Competition from makers on the Continent again is keen. German tube strip is offered at £6 18s 6d ($33.57), Birmingham, against a domestic price of £8 10s ($41.22). Belgian billets are £5 17s 6d ($28.48), against £7 5s ($35.16), the British price.

The European Rail Manufacturers' association has divided an order for 20,000 tons of rails for Finland at a price of £6 11s 6d ($31.88). One-third of the order goes to Belgian mills and two-thirds to French interests.

German makers have booked an order for 8000 tons of tubes for Brazil. German export demand is less active. Easier trends are reported in the markets in Belgium and France.

A continuation of high prices is restricting demand for British foundry iron. Inquiries for hematite are better, some melters on the Continent and in the United States making purchases.

British Steel Outlook Best for Many Years

BIRMINGHAM, Eng., Jan. 10.—(*European Staff Service*)—The new year has opened quietly as far as buying and selling is concerned, but the restart of furnaces is being pushed. The outlook is considered in some quarters brighter than for four or five years past. Much depends upon cheap raw material and fuel, and in the Midlands operations are being retarded somewhat on account of uncertainty of the position. Arrangements have been made for starting several furnaces in Northampton before the month is out, and others are being got ready. On the northeast coast the tone

Sterling $4.85

is cheerful, combined with a feeling of satisfaction that no less than 36 furnaces are now on the way toward producing iron. Most of it is mortgaged for the steel works, but when production is in full swing it should soon be possible to supply the needs of pressing buyers. Dorman Long & Co. at four works have eleven furnaces going; Bolckow Vaughans eight, and Pease & Partners eight, while the Consett Iron Co. has started six and Gjers Mills & Co. have three.

Prices are a little easier as the result of heavier production, and No. 3 Cleveland G. M. B. has fallen to £4 5s ($20.61) per ton for early delivery and £4 2s 6d ($20), three months.

Steel works at Middlesbrough are all working as hard as fuel supplies will allow. A shortage of ingots is reported in some cases, and if new orders are not coming freely it is simply due to the holidays and the improbability of prompt delivery. Constructional works in the Black Country who have fair inquiries are waiting to complete orders booked months ago, but they cannot obtain steel supplies or a promise of delivery under

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Jan. 24	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$20.61	4 5 0*	$19.40	4 0 0	$19.40	4 0 0	$19.40	4 0 0
Basic	.....	5 2 6	20.37	4 4 0	20.37	4 4 0	19.64	4 1 0
Basic-bessemer	23.04	4 15 0†	17.46	3 12 0	17.46	3 12 0	18.19	3 15 0
Hematite, Phosphorus 0.02-0.05	21.83	4 10 0	26.93	680*	.....	.....	21.34	4 8 0
SEMIFINISHED STEEL								
Billets	$32.74	6 15 0	$23.52	4 17 0	$23.52	4 17 0	$25.46	5 5 0
Wire rods	43.65	9 0 0	29.10	6 0 0	29.10	6 0 0	28.62	5 18 0
FINISHED STEEL								
Standard rails	$37.58	7 15 0	$29.10	6 0 0	$29.10	6 0 0	$29.10	6 0 0
Merchant bars	1.73c	8 0 0	1.13c	5 3 0	1.13c	5 3 0	1.23c	5 12 0
Structural shapes	1.46c	6 15 0	1.13c	5 3 0	1.13c	5 3 0	1.21c	5 10 0
Plates, ship, bridge and tank	1.68c	7 15 0	1.38c	6 3 0	1.38c	6 3 0	1.43c	6 10 0
Sheets, black, 24 gage	2.38c	11 0 0	2.30c	10 17 6	2.30c	10 17 6	2.42c	11 0 0
Sheets, galvanized, 24 gage, corrugated	3.46c	16 0 0	3.52c	16 0 0	5.07c	3,500*	3.74c	17 0 0
Bands and strips	2.38c	11 0 0	1.43c	6 10 0	1.43c	6 10 0	1.40c	6 15 0
Plain wire, base	2.11c	9 15 0	1.57c	7 2 6	1.57c	7 2 6	1.60c	7 5 0
Galvanized wire, base	2.76c	12 15 0	2.04c	9 5 0	2.04c	9 5 0	2.04c	9 5 0
Wire nails, base	2.06c	9 10 0	1.73c	7 17 6	1.73c	7 17 6	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 5.09	1 1 0	.....	.....	.....	.....	$ 6.79	1 8 0
	*Francs							
Domestic Prices at Works or Furnace—Last Reported			Francs			Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$20.61	4 5 0	$21.38	540(2)	$20.16	725	$19.55	85
Basic pig iron	24.86	5 2 6	22.97	580(1)	20.16	725	20.24	88
Furnace coke	6.06	1 5 0	7.82	197.50	7.51	270	4.95	21.50
Billets	32.74	6 15 0	26.93	680	21.55	775	25.88	112.50
Standard rails	1.73c	8 0 0	1.53c	850	1.30c	1,000	1.46c	140
Merchant bars	1.89c	8 15 0	1.38c	765	1.24c	955	1.40c	134
Shapes	1.68c	7 15 0	1.27c	710	1.26c	970	1.37c	131
Plates, ship, bridge and tank	1.89c	8 15 0	1.58c	875	1.73c	1,130	1.55c	149
Sheets, black, 24 gage	2.49c	11 10 0	2.79c	1,550	2.73c	2,100	2.29c	220
Sheets, galvanized 24 gage, corrugated	3.52c	16 5 0	4.64c	2,575	5.07c	3,500	3.65c	350
Plain wire	2.11c	9 15 0	2.70c	1,500	2.08c	1,600	2.03c	195
Bands and Strips	2.49c	11 10 0	1.70c	945	1.60c	1,230	1.61c	154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longway. British export furnace coke £1 5s 0d ($6.06) f. o. b. Ferromanganese £16 0s 0d ($77.60) f. o. b. German ferromanganese £15 10s 0d ($75.18) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

four months at the earliest. Steel plates have been promised from four to six months ahead. The Earl of Dudley's Round Oak works at Brierly Hill, Staffordshire, has orders sufficient for several months, including bridge building, general engineering, and the motor trade, a good proportion being for the Colonies and India. Scottish steelworks are resuming activity and steel sheetmakers have enough work to keep them busy during the first quarter. Rail mills at Barrow will also be engaged for several months on old orders accumulated during the strike, but new orders are rather scarce. The revival in shipbuilding has helped nut and boltmakers of the Black Country, and the chain and anchor business is also expected to benefit, although the business has not come to hand yet.

The finished iron market shows some signs of life and the output is increasing. Marked bars are unchanged at £14 10s ($70.33) and crown bars £12 10s ($60.62) to £12 15s ($61.83) as compared with the Lancashire brand at £13 ($63.04). Malleable iron founders who have been able to carry on without much increase in price are finding a steady flow of orders from the motor trade.

Steel scrap is a rising market, and some stocks accumulated during the stoppage are being got rid of. Continental scrap has been ordered in large quantities and deliveries will probably help to stabilize the British market. A big demand for scrap is expected following the restart of works consuming this material.

Fair inquiries are received for galvanized sheets and some good overseas bookings have lately been made. The price remains at £16 5s ($78.85) for 24-gage corrugated sheets and the usual quietness prevailing at the beginning of the year is met with.

An unusual dullness pervades the tin-plate business. Consumers are apparently awaiting still lower prices and the reduced figure of £1 1s ($5.09) has not attracted many buyers. For forward business February to March business can be done at £1 0s 3d ($4.91) basis. Welsh tinplate bars remain at £6 15s ($32.73) per ton delivered, whilst foreign bars are £5 15s ($27.88) c.i.f. The scarcity of English material has led to some Welsh makers asking a premium over the £6 15s ($32.73).

French Steelmakers Are Pinched

Office of IRON TRADE REVIEW,
9 Rue de Londres

Franc—$0.0395

PARIS, Jan. 10.—(*European Staff Service*)—Although the value of the French franc has been maintained at a practically fixed rate during the past two weeks, business on the French iron and steel market has been stagnant. Consumers are not disposed to commit themselves because they expect a further drop in steel prices following a new appreciation of French exchange which is anticipated in certain quarters. Furthermore, the general tendency is easy, with the result that new business is strictly limited in the expectation of lower prices. It should also be stated that a slowing down of activities always occurs at this time of year when a large number of warehouses, merchants and transforming mills are effecting their inventories. However, this year the crisis is more important, owing to general economic conditions.

The French government recently has decided to suppress the tax on exportation. This decision, is received with satisfaction by industry in general and more particularly by those interested in export business. This tax was instituted by the decrees of Aug. 3 and 12, 1926 and amounted to 1.30 per cent of the value of the invoice for iron and steel products. The ministry of commerce also is studying a new tariff which soon will be presented to the chamber of deputies. It is expected that this new tariff will be voted before April 1927, due to the fact that commercial agreements will be negotiated about that time.

The pig iron market is inactive. The demand is practically absent. The O. S. P. M., the organization that fixes the quantities of pig iron to be placed at the disposal of home consumers and also fixes the selling prices, has set 540 francs ($21.35) per metric ton base for No. 3 chill-cast foundry pig iron, about 2.5 per cent silicon, for January. During December 1926 the price was 600 francs ($23.40). This is a net decrease of 10 per cent. Correspondingly, the price of basic pig iron has been reduced from 640 francs to 580 francs ($25 to $22.60). In view of the poor demand it is expected the quota of 35,000 tons which the O. S. P. M. has allotted to the foundries will not be attained, and it is probable production of pig iron during the last month of 1926 will result in a decrease as compared with the output of previous months. One bright spot in the pig iron market is that collieries on the Nord and Pas-de-Calais have announced that the price of furnace coke will be reduced by 8.50 francs (33c) per ton. This will assist pig iron producers in bringing down production costs, this being their main problem for the time being.

The situation of steelworks is not brilliant. Whereas production costs have not decreased, selling prices in the domestic market are from 20 to 25 per cent below the level prevailing in October. Most works still have enough orders on their books for three or four weeks but in view of the small amount of new orders now received they gradually are slowing down production and concentrating on those products for which there is a certain demand. Many works are out for export business and order have been obtained for semifinished products. It should be noted that the present level of export prices is unremunerative to the French producer owing to the appreciation of the franc. However, in the semifinished steel department export business is more apt to be profitable.

In the domestic market basic bessemer blooms are quoted at about 550 francs ($21.80) per metric ton.

Mills have instructed their agents to accept any firm offers for merchant bars, but notwithstanding this policy they are not receiving the tonnage of orders that would enable them to operate normally and they are only working at a reduced rate. However, since stocks are practically depleted a number of plants are gradually building them up again, thus maintaining a certain current of business. Merchant bars are quoted at 700 to 750 francs ($27.70 to $29.60) per metric ton f.o.b. mill; beams are 660 to 700 francs ($25.60 to $27.70). Hoops and bands are quoted at 900 to 950 francs ($35.50 to $37.50), wire rods are about 900 francs ($35.50), plates are 850 francs ($33.50) and 2-millimeter sheets are 1300 francs ($51.20).

France Passes Peak of Iron Production

Paris, Jan. 10.—(*European Staff Service*)—Output of pig iron and steel for November in France showed a decline compared with that of October when the record figures for all time were reached. It can be assumed the October production constitutes the maximum output for a long time to come, since British furnaces again are being blown in.

French blast furnaces produced in November 789,648 metric tons of pig iron, compared with 815,694 tons in October. November tonnage included 590,714 tons of basic bessemer, 148,910 tons of foundry, 31,741 tons of gray forge, 17,536 tons of special grades and 741 tons of acid bessemer pig iron.

Output of steel ingots and castings in November was 714,041 metric tons, against 741,748 tons in October. November output included 490,503 tons of basic bessemer, 210,405 tons of open-hearth, 7497 tons of electric, 4189 tons of acid bessemer and 1447 tons of crucible steel. This tonnage was composed of 702,281 tons of steel ingots and 11,760 tons of steel castings. The following table gives figures for the first eleven months of 1926, compared with the monthly averages of the three preceding years and 1913, in metric tons:

Mon. ave	Pig iron	Steel ingots and castings
1913	433,900	390,580
1923	452,650	425,795
1924	637,660	575,540
1925	705,985	617,920
1926		
Jan.	762,810	660,566
Feb.	706,514	630,348
March	772,416	725,611
April	767,825	683,269
May	782,599	667,149
June	777,928	693,772
July	791,542	718,109
Aug.	813,503	704,447
Sept.	785,070	706,128
Oct.	815,694	741,748
Nov.	789,648	714,041

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

CANADIAN POWER SPECIALTY CO. Ltd. has been formed by G. B. Greene of the General Supply Co. of Canada, Ltd., Ottawa, Ont., and G. R. Cotterelle of the Canadian Bank of Commerce, Toronto, Ont. It has purchased the plant and business of the Engineering & Machine Works of Canada, Ltd., on the Welland canal at St. Catherines, Ont. The property includes foundry, machine shop, erecting shops, offices and auxiliary buildings. In addition to producing marine boilers, pulp and paper machinery and general mill equipment which were formerly made at this plant, the company will manufacture under exclusive Canadian rights important power plant equipment, hitherto made only in Great Britain and the United States. The company has the exclusive rights for Canada for the manufacture of a unit coal pulverizer, while still another product will be a tubular oil still. It is the intention of the new company to install much new machinery for producing the heavy type of products proposed, and the present operating staff will be largely increased.

* * *

C E. MORRIS IRON WORKS, Columbus, O., is rebuilding the ornamental iron shop at its plant, which was destroyed by fire last week.

* * *

GENERAL EXCAVATOR CO., Marion, O., has started night operation to meet demands for its products. Sales of excavating machinery at the recent good roads convention at Chicago totaled 25 units.

* * *

SWARTWOUT CO., Cleveland, has bought the S. C. Regulator Co., Fostoria, O., and will merge it with its own plant at Orrville, O. This purchase adds to the Swartwout line of steam specialties and power plant equipment. J. M. Barrett, head of the purchased company, becomes vice president in charge of steam specialties, with headquarters in Cleveland.

* * *

BESSEMER LIMESTONE & CEMENT CO., Bessemer, Pa., has been bought by the Standard Slag Co. and a subsidiary company will be formed to operate the cement properties of the parent company. The Bessemer plant has a capacity for 1,500,000 barrels of cement annually. The Standard Slag Co. has a cement plant in Buffalo with capacity for 1,250,000 barrels annually.

* * *

GAS PRODUCTS CO., Columbus, O., will build a manufacturing plant at Cleveland for the production of compressed acetylene and oxygen gas and distribution of calcium carbide and welding and cutting equipment. A site of five acres has been bought. Stanley D. Winger is president of the company and J. R. Gobey secretary and treasurer, both of Columbus.

* * *

DIRECTORS of the Replogle Steel Co. are reported to be preparing a plan for reducing the capitalization from 500,000 to 250,000 shares of no par value and for a change in the name to the Warren Pipe & Foundry Co. The proposed name is that of one of the company's important subsidiaries which manufactures cast iron pipe at Phillipsburg, N. J. Directors of the company long have been working on plans for the ultimate disposition of the company's blast furnaces at Wharton, N. J.

* * *

PARKERSBURG RIG & REEL CO., Parkerburg, W. Va., has given a contract to the Austin Co., Cleveland, for the first units of its new plant. The structure will be 125 x 242 feet, one story, steel construction, with an aisle of 60 feet clear span with a 10-ton crane with two 5-ton trolleys. A traveling bridge crane will handle materials and products from and to railroad cars. Provision is made for loading 700 cars per day. Additional units will be started as soon as the first contract is completed.

* * *

BURGAN CORP., 9 South Clinton street, Chicago, recently incorporated, has started operations in the production of shop equipment tools and automotive accessories, including cotter pin extractors and valve spring lifters. It is having its manufacturing done on contract but plans a plant of its own, which will require punch presses, lathes, drilling and milling equipment and a nickel plating plant. Floyd L. Musgrove is president, William H. Burke vice president, J. F. Soles secretary and L. A. Milot treasurer.

* * *

PREFERRED stockholders of the Standard Malleable Iron Works, Terre Haute, Ind., for which Paul Bogart, banker, is receiver, are taking measures to protect their equities and if possible reorganize and continue operations. Mr. Bogart has advised that a protective committee be organized to perfect an agreement by which the interests of all stockholders and their equities will be protected. The Terre Haute National bank will be the depository pending acceptance of the agreement to be drawn by the protective committee.

* * *

JEFFREY MFG. CO., Columbus, O., is celebrating this year its semi-centennial. Its first product was a machine for cutting coal mechanically on which new types of chain were used for power transmission. This chain was adapted to driving feed rolls in rolling mills. This type of chain, with suitable attachments, then was adapted to conveyors of various sorts. From these beginnings the company has developed its line of coal-mining machinery, electric locomotives and elevating, conveying and crushing machinery.

* * *

PHILIP H. DORR, president of the Kinite Co., Milwaukee, manufacturing special tool and die steel, and associates have acquired the entire interest of the C. A. Shaler Co., Waupun, Wis., vulcanizing machinery and equipment, and automotive specialties, as well as the Bauer Lock Co., Chicago, automobile locks and steering wheels. A new corporation, the Shaler Co. has been formed under the laws of Delaware, and will continue the operation of the Shaler business at Waupun, also owning the Shaler Lock Co. as the Bauer company henceforth will be known. The Shaler business was established 20 years ago and in 1923, following a fire which destroyed its factory, erected a complete new plant with a capacity of about twice its present normal output. Twenty per cent of its output is exported.

Rate Hearings Begin March 16

Commission Selects Pittsburgh for Opening of Sweeping Probe of Carload Rates on Manufactured Iron and Steel in Official Classification Territory —Sessions Also at Columbus, O., Detroit and Chicago

WASHINGTON, Jan. 25.—What promises to develop into a most exhaustive investigation into railroad freight rates on manufactured iron and steel articles in carloads will be inaugurated at Pittsburgh, March 16, by the interstate commerce commission.

In recent months dissatisfaction with the iron and steel rate structure in official classification territory—broadly, north of the Potomac and Ohio rivers and east of the Mississippi—has been growing, judging from the number of complaints filed. Many of the latter are the outgrowth of the mileage basis decision in the Jones & Laughlin case.

Following a preliminary conference in New York Dec. 4, the commission decided not only to merge all pending complaints but also to open the door to all interested parties without the procedure of filing a formal complaint. The results is a series of hearings before Commissioner Campbell and Examiners Faul and Bardwell.

The initial hearing will begin at the chamber of commerce, Pittsburgh, March 16. Then will follow hearings at Columbus, O., April 19, in the United States court rooms; at Detroit, April 25, at Hotel Statler; and at Chicago, May 12, at the Great Northern hotel. If additional hearings are necessary they will be scheduled.

By March 1 the interested carriers are expected to submit the following to the commission and the various shippers' committees:

(a) Traffic maps of the various rate groups and territories involved.

(b) A complete history of the rate situation, including the different general increases and reductions, showing in addition—

(1) The present rates, indicating whether class or commodity, whether on the basis prescribed in Jones & Laughlin Steel Corp. v. B. & O. railway company 96 I. C. C. 682, any other distance scale, percentage groups or other groupings, and distances. Actual distances should be shown between the principal iron and steel producing and consuming points as well as the average distances between the principal groups. If different bases or scales apply intrastate such fact should be definitely shown. The exhibits should show tariff references, including item and page number, and all distances should show the routes used, including the junctions through which they have been figured. It is understood that the carriers within trunk-line territory for some time have been engaged in checking distances on the basis of the shortest routes over which carload traffic can be moved without transfer of lading. Wherever available those distances should be used and that fact stated.

(2) A detailed description of the principal rate groups naming principal points embraced in the groups, showing among others—

A—The Buffalo-Pittsburgh adjustment, both eastbound and westbound.

B—The Pittsburgh-Cleveland-Wheeling-Johnstown short-haul adjustment, both eastbound and westbound.

C—The western termini groupings, both eastbound and westbound.

D—The adjustments from eastern producing points such as Sparrows Point, Bethlehem, Steelton, Coatesville, etc., to eastern destinations.

(c) Statement showing the difference in the level of the rates interterritorially between New England, trunk-line, central freight association, and Illinois freight committee territories.

(d) Statement showing the rates applicable to the north Atlantic ports, on both domestic and export traffic, and specifically the adjustment between the different ports.

(e) Transportation conditions, including—

(1) Net ton miles per mile of road by states.

(2) Freight revenue per mile of road by states.

(3) Net railway operating income per mile of road by states.

(f) Detailed statement showing methods of handling traffic in line-haul service with a view especially to determining relative differences in costs as between short-haul and long-haul traffic.

At the Pittsburgh hearing the carriers are expected formally to file the above data. Following cross-examination of the carriers' witnesses, such complainants as so desire will have opportunity to take the stand. At the Columbus hearing the carriers will be called upon to present their complete testimony in case No. 17,878, involving carload rates on iron and steel articles in Ohio. State commissions may be heard at any hearing. The carriers are expected to make their reply at the Chicago hearing.

The commission desires that complainants notify it by March 10 at which city he wishes to present his case. The chairmen of the various shippers' committees are as follows: New England, R. W. Poteet, the Stanley Works, New Britain, Conn.; Trunk Line, H. C. Crawford, Bethlehem Steel Co., Bethlehem, Pa.; Central Freight association, A. H. Brown, chamber of commerce, Cleveland; and Illinois-Indiana, Murray N. Billings, Illinois Steel Co., Chicago.

The commodities coming within the scope of the hearing embrace practically all manufactured iron and steel products, such as angles, arches, axles, bands, bars of all classification, beams, bearing, chain or link belting, blanks, blooms, bolts or nuts, annealing and charging boxes, brake shoe parts, buckles, bumpers, cable, calks, castings, chain, channels, columns, couplers, culverts, fencing, fittings, flues, flumes, forgings, girders, hoops, joints, links, locks, nails, pans, piling, pipe, plates, poles, reinforcement, rods, rolls, roofing, rope, shafting, sheets, shoes, sills, skelp, spikes, stampings, staples, stays, straps, strip, ties, tires, trusses, tubing, underframes, washers, weights, wheels and wire.

Southern Rate Advance Benefits North

New York, Jan. 25.—Increased freight rates on steel from Birmingham which went into effect Jan. 1 appear likely to benefit northern mills. The new rates have resulted in pushing further south the freight rate boundary between Pittsburgh and Birmingham.

Up to the beginning of this year Birmingham had the advantage in freight to points north of Richmond. At present rates from Pittsburgh reach a parity with the rates from Birmingham nearly as far south as Greensboro, N. C.

The biggest advance in the Birmingham rates is to Virginia common points. It now costs more than $4 in excess of the rates prevailing last month to ship steel from Birmingham to Virginia.

The following table gives rates on finished steel in cents per 100 pounds in carloads to representative points and shows how the Pittsburgh rates compare with the old and new Birmingham rates:

	From Pittsburgh	From Birmingham	
		New	Old
Baltimore	31	49	39
Washington	31	49	39
Richmond, Va.	38	49	28½
Norfolk, Va.	38	49	28½
Charlotte, N. C.	51	39	31
Columbia, S. C.	58	38	31
Charleston, S. C.	58	38	21½
Savannah, Ga.	66	38	21½
Jacksonville, Fla.	70	38	21½
Atlanta, Ga.	58	22	21½

As a matter of fact, Pittsburgh and eastern Pennsylvania mills right along have been getting the lion's share of the business in Virginia, and eastern Pennsylvania steel has supplied a large share of the requirements of North Carolina. It is expected that the change in freight rates will cement the hold of northern mills in the Southeast.

Ferrosilicon was manufactured successfully in the electric furnace in 1910.

Men of Industry

(*Continued from Page* 300)

ton university also located in St. Louis.

* * *

Charles A. Tobin has been added to the city sales force of Betz-Pierce Co., Cleveland, iron and steel warehouse interest.

* * *

David Arnott has been elected president of the Brown & Sharpe Mfg. Co. Mutual Relief association, Providence, R. I.

* * *

Adrian B. Weaver has joined the pig iron sales force in the Chicago offices of Hickman, Williams & Co. Mr. Weaver for 15 years had been with the Chicago office of the former Rogers, Brown & Co., but more recently had been connected with the Indiana Consumers' Gas & By-Products Co.

* * *

Arthur A. Fowler, president of Rogers Brown & Crocker Bros. Inc., New York, has been elected a director of the Corn Exchange Bank of New York.

* * *

H. C. Woodsum, formerly in charge of advertising and sales promotion has been made assistant to the management of the Boston Gear Works Inc., Norfolk Downs, Mass.

William E. Kerrish, for the past two years in the advertising department, has been made advertising manager to succeed Mr. Woodsum.

* * *

Thomas L. Jefferson, for many years president of the Package Machinery Co., Springfield, Mass., manufacturer of box, paper and package machinery, was recently elected chairman of the board to succeed the late William L. Putnam.

Roger L. Putnam, formerly vice president, was elected president.

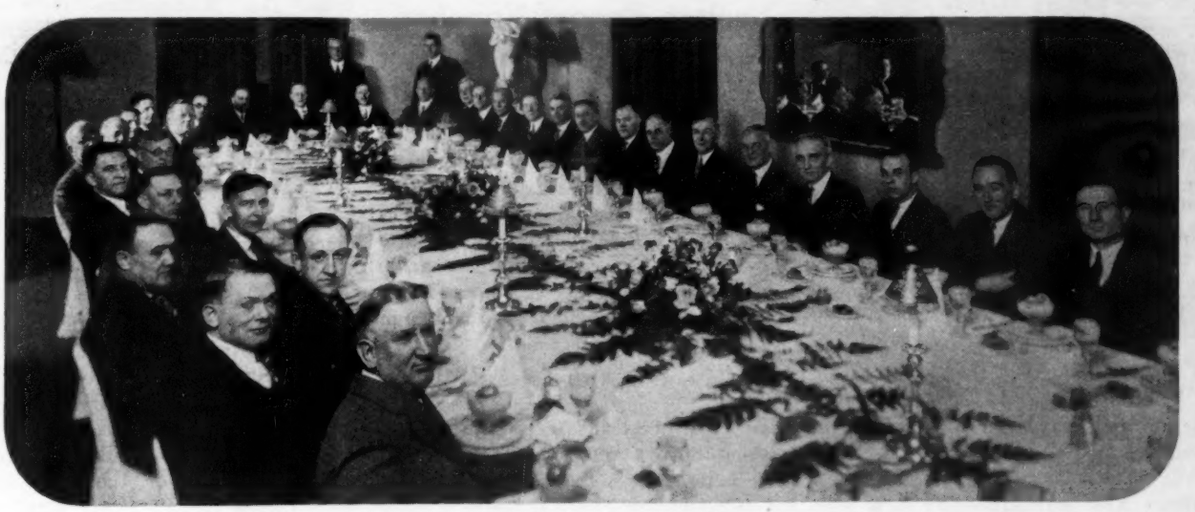
* * *

Herbert G. Stout, export manager of the Chain Belt Co., Milwaukee, sailed for Europe, Jan. 22 to make a comprehensive study of trade conditions and market possibilities. He will be absent about eight months.

* * *

George A. Russ has joined the service staff of the Quigley Furnace Specialties Co. Inc., New York, manufacturer of refractory materials and equipment as representative in the

(*Concluded on Page* 308)



OWNERS AND MANAGERS ATTEND STEEL COMPANY BANQUET

WHEN good friends get together" might well be the caption of this illustration, from a photograph taken at the annual dinner of the Allegheny Steel Co., Pittsburgh Athletic club, Dec. 21. Owners, officers, directors, managers and superintendents attended, exemplifying the co-operative spirit characteristic of the management of the company. Starting at the left, and reading around the table to the right, those in the group are: W. L. Dankmyer, assistant auditor; W. A. Givens, superintendent rod mill; A. E. Miller, master mechanic; G. W. Evans, superintendent bar mill; W. E. Caugherty, chief metallurgist; H. D. Utley, superintendent foundries; C. F. Fuhrman, manager accounting department B; L. E. Harris, Main & Co.; W. S. Diggs, president, Hoover & Diggs Co.; H. D. Rise, superintendent finishing department; W. F. Detwiler, general manager; H. B. Pavitt, chief accountant; W. M. McArdle, assistant general sales manager; J. R. Taylor, assistant chief engineer; H. M. Arbuthnot, manager Detroit sales office; E. R. Perkins, production manager; H. A. Young, superintendent open-hearth department; C. C. Henderson, vice president.

Standing—T. G. Seixas, president, Chandler & Floyd Inc; A. R. Brucker, superintendent tube mill. Resuming, seated at the table—O. B. Linquist, chief engineer; E. L. McGraw, purchasing agent; S. C. Hookey, superintendent electrical sheet department; F. H. Stephens, secretary; A. C. Tucker, chief inspector; R. R. Curry, superintendent sheet mills; C. J. Lucas, superintendent wheel mill; J. O. Carr, vice president; W. E. Hanna, superintendent automobile and pickle sheet department; H. R. Connell, General Electric Co.; H. E. Sheldon, president; M. C. Harris, manager service department; F. H. Walker, manager welfare and employment departments; P. F. Voigt Jr., general sales manager.

German Works Are Impressive

Size and Condition of Furnaces and Mills Make Them Outstanding on Continent—Austria Centers on Special Steels—Italy Is Stepping Up Its Production—Belgium Prepared To Handle Shipments Efficiently

WASHINGTON, Jan. 25.—The general bigness of plant equipment features the Ruhr. Here blast furnaces discharge molten iron at 400 to over 1000 tons every 24 hours, open-hearth furnaces and cogging mills are larger than seen before on the Continent. Germany took advantage of the inflation period after the war to greatly improve its physical steel mill equipment, and on every hand a new power plant, an enlarged and modernized blast furnace, an electrified plant railway system, a new office building, or a new battery of coke ovens could be seen. In other words, Germany's iron and steel making equipment has been brought up to the highest degree of fitness and efficiency, and the industry and its various selling organizations is fully prepared to go out for world trade of which, unfortunately, at the present time there does not appear to be sufficient to go around.

The European Steel Entente in the inception and organization of which Germany has taken a leading part, has already gone far toward realizing its main purpose, the stabilization of prices through the control of production on the basis of world consumptive needs, and should prove of great benefit not only to the eight nations now participating in it, but to the United States and the United Kingdom as well. The German rail producers have recently affixed their signatures to the European Rail Manufacturers association agreement, another of these international accords which aim through stabilization of world prices to insure a fair profit to the manufacturer and to prevent undue waste and loss to the consuming public as the result of price instability.

The Germans have gone further in the direction of amalgamation and mass production of iron and steel than have any other people outside the United States. In the "Vereinigte Stahlwerke A. G.," (United Steel Works) an amalgamation of five leading producing groups, organized at Dusseldorf on Jan. 14, 1926, and accounting for 55 per cent of the total of German ingot steel production, we have an example of a large combination aiming toward elimination of waste and increasing operating efficiency through the concentration of production in certain low cost plants, in collective purchasing of raw materials and supplies, and through more effective distribution of resulting products by means of one selling organization which operates both in domestic and foreign markets.

Germany's present raw steel production capacity has been estimated at 16,000,000 to 18,000,000 metric tons per year—production during November, 1926, at 1,257,000 tons of ingots and castings representing an annual output rate of about 15,000,000 tons. The returns for the whole of 1926 will probably indicate a total production of about 12,200,000 tons. Exports of German iron and steel products, inclusive of pig iron, will on the basis of the official returns known to date, amount to over 5,000,000 tons, which figure closely approximates that for the pre-war year 1913.

Since the loss of the Lorraine iron mines to France, German blast furnaces have been depending largely on iron ore brought in from Sweden, North Africa, and Newfoundland. Germany is rich in good coking coal and not only supplies its own needs but also sells considerable tonnage of both coal and coke to neighboring iron producing countries.

One large company, the "Osterreichisch-Alpine Montangesellschaft" (Alpine-Mountain Steel Co.), with a plant near Austria's world-famous iron mountain, the "Erzberg," controls about 85 per cent of the total iron and steel production of the country, and manufactures a great variety of steel products. Austria also has a world-wide reputation for high grade alloy and special steels—usually referred to as "Styrian" steel.

The Styrian Erzberg is celebrated not only for the extent of the deposit, but also on account of the exceptional richness of the ores and their suitability for furnace treatment. These characteristics render it possible to economically operate the smelting works of the Alpine company, notwithstanding the fact that the fuel required for the blast furnaces has to be brought from either the northern part of the country or from the Westphalian district of Germany.

Austria's raw steel making capacity is placed at 3,000,000 metric tons. However, since the war its steel production has been exceedingly small when compared with the 1913 level of 2,580,000 tons. For the first nine months of 1926 the entire output amounted to only 371,500 tons, but Austrian steel masters are hopeful of better trade in 1927, and it can be expected that membership in the European Steel Entente, which the Austrian industry joined on Dec. 11, 1926, will prove advantageous.

The major part of the iron and steel production in Italy results from plants which are part of the "Ilva" company, which operates eight plants comprising blast furnaces, steel mills, and foundries, and with a combined raw steel making capacity of about 750,000 metric tons a year. The principal works of this organization are at Bagnoli, near Naples, and at Piombino, on the mainland opposite the Island of Elba, where there are both blast furnaces and steel mills. Other important iron and steel works are those of "Terni," "Lombarde," and "Cogne." Production in these Italian plants is confined largely to light and heavy steel rails (up to 50 kilograms per meter), structural shapes, plates and sheets, merchant bars, wire products, and special steels.

The blast furnaces run to capacities of from 300 to 400 tons, and the open-hearth furnaces, which receive from 30 to 40 per cent of scrap in the change, are generally of 60 tons capacity. The bulk of the iron ore used in the Ilva blast furnaces comes from the Island of Elba, and it was stated that the Italian government is feed-

Becker Report Finished

IN LAST week's IRON TRADE REVIEW *was given the report of Luther Becker, chief of the iron and steel division, bureau of foreign and domestic commerce, on trade conditions in the iron and steel industry of England, France, the Saar and Luxemburg. Mr. Becker, who sailed late in October and returned only recently, herewith presents his comments upon Germany, Austria, Italy, Belgium and the Netherlands.*

ing out more and more of this ore in order to increase the country's production of both pig iron and steel. The 1926 raw steel production for the whole of Italy has been estimated at 1,712,000 tons as compared with 1,785,000 tons in 1925, and only 918,000 tons in 1913. Last year's pig iron output has been estimated at 522,000 tons, which is comparable to the 482,000 tons accomplished in 1925 and to the 420,000 tons reported for 1913.

The capacious and conveniently laid out docks at Antwerp, from which port all Belgian and the major portion of the other continental steel is shipped for foreign consumption, confirms impressions as to the importance of the Belgian steel industry as a factor in international trade. Every outgoing ship was taking its quota of steel of such descriptions as, rails, heavy I beams and channels, merchant bars, concrete reinforcing rods, plates, wire rods, tubular products, cast iron pipe, barbed wire, and steel railway sleepers, of which last great quantities are intended for the railways of British India. Belgium, like Luxemburg, exports over 85 per cent of its total steel production, and has been supplying the world's needs, during 1923, 1924, and 1925, to the extent of 2,500,000 tons a year, and in 1926 increased its exports to approximately 3,000,000 tons.

Belgian blast furnaces are supplementing their local supply of iron ore with richer materials from Spain and Sweden, and are also drawing some quantities from French mines as well. For their fuel supply coal is drawn from local pits, and additional supplies of coke are purchased from outside sources wherever obtainable to best advantage. As in France and Luxemburg, the Belgians utilize the Thomas (basic bessemer) process almost entirely in steel making, using converters of from 20 to 24 tons capacity. In their open-hearth practice small furnaces of from 10 to 15 tons capacity are used, and the metallic charge is almost entirely scrap of which there appeared to be a great abundance. There is also a similarity in respect to blast furnace practice in these three countries where use is made of 200-ton capacity furnaces, and where the American skip hoist is frequently seen.

The ingot steel capacity of Belgium is probably as much as 4,000,000 tons. In December last the industry was turning out raw steel at an annual rate of 3,700,000 tons, and it is recalled that the Belgian steel masters held out for a monthly production quota of 295,000 metric tons before entering the European steel entente, which commenced functioning Oct. 1, 1926, with the production level for the first three months determined on a basis of a total output of 27,587,000 metric tons for a year. The steel rolling mill equipment in certain plants is highly modernized and in some instances mills are of American design.

Since January, 1924, when the first blast furnace in the Netherlands was lighted, that country has been an important factor in world pig iron trade. On Jan. 8, 1926, the second blast furnace, with a daily capacity of 350 tons (the first furnace being rated at 300 tons), was put in blast giving the Royal Dutch Blast Furnaces and Steel Works, at Ymuiden, near Amsterdam, a total yearly production capacity of 235,000 tons. Both furnaces were designed by an American engineering firm, and represent the best in iron smelting practice. The original plan of adding a steel mill to the iron plant to utilize the product of these furnaces, and to roll steel products for domestic consumption was abandoned, and may never be carried out.

The location of this plant, on an arm of the North Sea, facilitates the transfer of both ore and fuel directly from ocean-going carriers to the furnace bins by means of a huge ore transfer bridge. Iron ore is received from Normandy (France), Bilbao (Spain), Sweden, and Algeria. About one-half of the requirements for coking coal is supplied from local mines in the Province of Limburg, and the remainder from its pits in the Ruhr. Limestone is acquired from the company's own quarries in Belgium.

Practically the entire output of these furnaces is sent to foreign markets—the United States, in recent years, taking over one-half of the total tonnage exported.

Industrial Business Changes

DAYTON-DUNBAR, INC., 149 Broadway, New York, has been recently appointed agent for Bardons & Oliver, Cleveland, manufacturers of turret lathes and screw machines; Cochrane-Bly Co., Rochester, N. Y., metal cutting saws; Merit Oil Equipment Co., Cleveland, sensitive drills; and the Leon J. Barrett Co., Worcester, Mass., centrifugal oil extractors and dryers. The company also represents the Reed-Prentice Co., Worcester, Mass., lathes, milling machines, and production equipment; the Bethel-Player Co., Westboro, Mass., lapping machinery and amplifying gages; Stockbridge Machine Co., Worcester, Mass., shapers; and Cincinnati Engineering Tool Co., Cincinnati, vertical automatics.

* * *

Excelsior Tool & Mfg. Co., New York, has removed from 486 Greenwich street to 881 East 147th street.

* * *

S. D. Baker Corp., 236 West Fourteenth street, New York, formerly the S. D. Baker Mfg. Co., has been incorporated to take over the business of the former.

* * *

Anderson Engine Co, Chicago, has removed its works and offices to 2040 Dominick street where it has larger facilities for the manufacture of marine engines.

* * *

Continental Can Co., New York, has bought the capital stock of the Eastern Can Co., San Jose, Calif., the third coast plant bought recently by this interest.

* * *

Calumet Auto Sheet Metal Works Inc., 59 East Twenty-Sixth street, Chicago, has changed its name to Calumet Auto Body Co. Inc.

* * *

Allison Steel Mfg. Co., Phoenix, Ariz., has succeeded to the business of the Allison Spring Co., James M. Johnston, secretary and treasurer, without change in management of policy.

* * *

Racine Electric Co., Racine, Wis., and the Racine Universal Motor Co., Chicago, have been consolidated at the former city. Personnel of the Chicago office will be removed to Racine.

* * *

Cleveland Planer Co., Cleveland, has taken over from the Woodward & Powell Co., Worcester, Mass., the manufacture of the latter's crank planer and supply of repair parts.

Men of Industry

(*Concluded from Page* 305)

central South and South Atlantic states. His headquarters will be at Atlanta.

* * *

Charles U. Unterzuber, for the past 22 years with the Cleveland Nickel Works and the Cleveland Chaplet & Mfg. Co., Cleveland, has been made general manager of these interests. The companies manufacture tumbling barrels and chaplets for foundry service. Before his affiliation with those companies Mr. Unterzuber was assistant to the general manager of the Walworth Run Foundry Co., Cleveland.

* * *

Stephen McGovern, for 12 years connected with Matthew Addy Co. and the Domhoff & Joyce Co. in the pig iron and coke business, and more recently with the Green Foundry Co., St. Louis, has joined the sales force of the St. Louis Coke & Iron Corp. St. Louis.

* * *

Paul W. Newcomb, formerly with the Milton Mfg. Co., Milton, Pa., manufacturer of nuts, washers, electric steel castings and alloy steels, has joined the Graham Bolt & Nut Co., Pittsburgh, in charge of its eastern Pennsylvania, New Jersey and Maryland territory.

* * *

O. C. White has been elected vice president of the Youngstown Boiler & Tank Co., Youngstown. Prior to his recent connection with the Youngstown company he was contracting engineer for three years for Pittsburgh-Des Moines Steel Co. and before that was sales manager for the Youngstown company. For ten years prior to that he was with the United Iron works, Kansas City, Mo.

* * *

Harvey M. Rein has resigned as Youngstown district representative for the Mesta Machine Co., Pittsburgh, to join the sales department of the Aetna-Standard Engineering Co., the combination of the Aetna Foundry & Machine Co., Warren, O., and the Standard Engineering Co., Ellwood City, Pa. Mr. Rein had been with the United Engineering & Foundry Co. and Youngstown Foundry & Machine Co. prior to his connection with Mesta Machine Co.

* * *

Walter E. Harris, for several years with the sales department of the Stephens-Adamson Mfg. Co., Aurora, Ill., manufacturer of transmission and conveying machinery, has been made manager of the southeastern district, with offices at Martin building, Birmingham, Ala.

* * *

J. C. Miller, general manager of the Ashland, Ky., plant of the American Rolling Mill Co., Middletown, O., was elected president of the Ashland Steel Co. at a meeting of the board of directors, Jan. 20.

I. P. Blanton was elected vice president and general manager, and George F. Parks, secretary and treasurer. Mr. Miller fills the vacancy caused by the death of T. M. Adams several months ago. Mr. Blanton is president and general manager of the Belfont Steel & Wire Co., Ironton, O.

Obituaries

ANSON WOOD BURCHARD, vice chairman of the board of directors of the General Electric Co., Schenectady, N. Y., and chairman of the International General Electric Co., New York, died Jan. 22 at the home of Mortimer L. Schiff in New York, aged 62 years. He had been connected with the General Electric Co. since 1902 at which time he was associated with Charles A. Coffin in its organization. He was controller at Schenectady for the first two years with the General Electric Co., in 1904 becoming assistant to the president, in 1912 vice president and in 1924 vice chairman. He was made chairman of the International company in 1922.

* * *

Jacob Meurer, president of Meurer Steel Barrel Co., New York, died at his home there Jan. 23. Mr. Meurer was a pioneer in the tin plate industry. He was 67 years of age.

* * *

Joseph C. Dodge, formerly with the tool company of Dodge, Heller & Lyons, Newark, N. J., died recently at the home of his son in Bloomfield, N. J., aged 88.

* * *

Isaac Durlach, president of the Durlach Can & Iron works, Brooklyn, N. Y., died Jan. 12 at his home there. He had been in business in New York for 40 years.

* * *

Edwin G. Geering, vice president of the Clyde E. Lowe Co., Cleveland, metal stamping company, died in his automobile at Akron, O., Jan. 24.

* * *

Samuel Owen Edmonds, attorney and counsel for the General Electric Co., Schenectady, N. Y., for more than 20 years, died Jan. 20 at his home in New York, aged 57.

* * *

William A. McDougal, one time superintendent of the Sizer Forge Co., Buffalo, died in that city recently. He was born in Buffalo, Oct. 3, 1867. After becoming superintendent of the Sizer company he joined Farrar & Trefts Inc. in the same capacity. He was interested also in the New York Central Car Wheel Co. for a number of years.

* * *

John Kelsey, president of the Kelsey Wheel Co., Detroit, died at his home there, Jan. 19. He was born March 15, 1866 and started to work at the age of 11 years. Mr. Kelsey was part owner of the Detroit American league baseball club.

* * *

Asa W. La France, one of the founders of the American La France Fire Engine Co. Inc., Elmira, N. Y., died at his home in that city Jan. 23. He was 82 years of age. Mr. La France became interested in the American La France Fire Engine Co. in 1870 and continued active in it until 1905.

* * *

William J. Crossen, formerly president of the Crossen Car Co. of Coburg, Ont., who retired from business a few years ago when the firm became a joint stock company, died at Toronto, Jan. 16. He was born in Coburg, in 1857, and joined his father in business. On the death of his father in 1891 Mr. Crossen succeeded him as president of the firm.

* * *

James Ford Rhodes, one of the founders of Rhodes & Co., one time dealers in iron, iron ore and coal, died Jan. 22 at his home in Brookline, Mass. He retired from the iron selling industry in the eighties and the firm later was reorganized as the M. A. Hanna Co., Cleveland. Mr. Rhodes was a brother-in-law of the late Mark A. Hanna. Mr. Rhodes was considered one of the greatest American historical authorities. He won the Loubet prize from the Berlin academy of science in 1901, the gold medal of the National Institute of Arts and Letters in 1910 and the Pulitzer prize for history in 1918.

Machinery

Except for Small Single Tools, Buying of Shop Equipment Is Light—Only Fair Inquiries Are Before the Trade

SALES of equipment during the past week have not been brisk, however, January is closing with a volume of business about on a par with that placed in December. The largest placement recently is that of the Pullman Car & Mfg. Co., Chicago, which closed its substantial list pending for some time. The greater part was placed in the East, a small portion going to Chicago dealers. Some action on the lists of the Carnegie Steel Co., Westinghouse Electric & Mfg. Co., and American Sheet & Tin Plate Co. may be taken this week. Numerous manufacturing plants are known to have plans for revamping equipment during the year. Used equipment is listless. Crane buying is light in all principal territories, overhead types being particularly slack.

New York, Jan. 25.—At least fair satisfaction is expressed by most machine tool builders over business placed in the month now closing. With one or two exceptions, no large lists have been reported in this district, yet there has been a fair flow of small orders. Recent buyers include New York Central, which has closed on three vertical drill presses and a floor grinder for its eastern lines, the business going to Niles-Bement-Pond Co., and Pullman Car & Mfg. Co., which has closed on some substantial business with eastern sellers. General Motors Corp., Detroit, has closed on five 16-inch geared-head lathes and one vertical service grinder to Pratt & Whitney Co. This builder also has closed on three hand milling machines for Sargent Co., New Haven, Conn.; a profiler for the Mergenthaler Linotype Co., Brooklyn; an automatic worm grinder for a gear company and a special vertical wheel press for A. Shrader's Son Inc., Brooklyn. Crane buying is exceedingly slack. One large list is pending, but details are lacking.

Pittsburgh, Jan. 25.—Machine tool business pending here is more important than the orders being placed. The latter are confined to actual needs of one, two or three machines, involving the expenditure of $500, $1000 or $1500 at a time. These come from well scattered territories and different manufacturers. The larger lists of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; Carnegie Steel Co., Clairton, Pa.; American Sheet & Tin Plate Co., and others, still are held over but give promise of showing some life this week. The newest list, although it is out of the territory for some sellers, is that of Baltimore & Ohio railroad for Montclaire near Baltimore, involving eight items. Small electrical tools are moving well. One of the newer inquiries for cranes here is from Jones & Laughlin Steel Corp., including one 175-ton with 40-ton auxiliary. Carnegie Steel Co. has revived its inquiry for a special locomotive crane with overhead features for Houston, Tex. Crane awards for the week are nil.

Chicago, Jan. 25.—The past week has brought a lull in buying. Sales are few and mostly for single tools, well-scattered among various manufacturing interests. In award of Pullman Car & Mfg. Co.'s recent list, Stocker-Rumely-Wachs Co., Chicago, received orders for four high-speed ball-bearing drills. Inquiry is light with no new lists before the trade. Railroad requirements are not expected to develop before Feb. 1. Wisconsin buyers have shown more interest during the week than other territories for one or two dealers here. New York Central is seeking prices on a 5-foot radial drill and two swing-frame grinders. Used tools show a little more activity than new machinery in this territory, with January thus far about on a par with the previous month. Prices are firm but unchanged. Interest in overhead cranes continues light, and builders of locomotive and crawler equipment also report no unusual business. Inquiry for overhead equipment is low.

Boston, Jan. 25.—Better inquiry is developing throughout New England. Railroads are preparing tool lists and several school houses will come into the market before the end of this month. In addition, many manufacturing plants have plans for revamping equipment during 1927. Recent sales include two lathes and a grinder to a manufacturer at Millers Falls, Mass., three tools for a school at Rochester, N. H., two millers to General Electric Co., Lynn, Mass., and some other equipment for General Electric Co.'s New England plants, a planer for a Worcester, Mass., manufacturer and other scattered individual tools. There are rumors that a Massachusetts manufacturer will buy 25 engine lathes and that the New Haven railroad will soon be in the market for equipment for a new car repair shop.

Detroit, Jan. 25.—Demand for machinery and machine tools continues satisfactory. While the demand for new equipment is not record-breaking, it is at least normal for this time of year and a good first quarter is anticipated. Re-equipping and retooling continues to command most of the material moving. The automotive and allied industries here, while furnishing the bulk of present buying, are not exclusive. The electric refrigeration industry is taking some equipment and aircraft manufacturing plants are also in the market.

Cleveland, Jan. 25.—Although starting the new year at a pace which proved most encouraging, sales of machine tools in the local market have tapered off to practically nothing. Machinery houses are at a loss to explain the dearth of business and make no forecasts as to when an improvement will come. Inquiries are lighter than they have been and some which are worked almost to the closing point fall through for various reasons. Buyers apparently are extremely cautious while they are determining the future course of operations. Used tools are showing no more activity than new.

CRANE ORDERS PLACED

Twenty-seven jib cranes of ½ and 1-ton capacity and 31 electric hoists of similar capacity for Chapman Valve & Mfg. Co., Indian Orchard, Mass., awarded through Dwight P. Robinson & Co. Inc., to American Engineering Co.

Three 2-ton electric hoists for Albert Smith's Sons, Irvington, N. J., to Box Crane & Hoist Corp.

Among single orders were: 25-ton standard locomotive crane for Walsh Construction Co., Syracuse, N. Y., to Browning Crane Co.; 25-ton locomotive crane for Cleveland Engineering Construction Co., Cleveland, to unnamed seller; contract for revamping monorail system from Brooklyn Edison Co., Brooklyn, N. Y., to New Jersey Foundry & Machine Co., includes installation of some additional hoists; 15-ton wrecking crane for Mobile & Ohio, to Industrial Works.

CRANE ORDERS PENDING

Cranes for Jones & Laughlin Steel Corp., Pittsburgh, including one 175-ton unit with 40-ton auxiliary; bids being taken.

100-ton ladle crane for Bethlehem Steel Co., Johnstown, Pa.; bids being taken.

Special locomotive crane with overhead features retained for Carnegie Steel Co., Houston, Tex.; inquiry revived.

3-ton, 2-motor crane for General Electric Co., Pittsfield, Mass.; bids asked.

Say Rate Policy Holds Back Middle West

Chicago, Jan. 25.—Speakers at the midyear meeting of the north central division of the chamber of commerce of the United States stressed the view that the policy of the interstate commerce commission regarding water competitive freight rates is restricting Middle West manufacturers' trade territory.

The inflexible rule, as shown by commissions decisions, denying rail carriers the right to meet water competition on the Pacific coast, deprives midwest manufacturers from Pacific coast markets which they formerly enjoyed, said D. F. Lyons, general counsel of the Northen Pacific railroad.

Charles Piez, Link-Belt Co., Chicago, said competition fostered by the Panama canal has compelled the railroads to increase local rates. Even with the Lakes-to-Gulf waterway the railroads' unhampered competition for east and west traffic is essential to prosperity, according to Mr. Piez.

Construction and Enterprise

Concise Timely Business Building Opportunities
from the Field of Industry

LITTLE ROCK, ARK.—Sanitary Food Machine Co., Glover building, has been incorporated with $50,000 capital by B. W. Thomason.

BREA, CALIF.—Shaffer Tool Works, manufacturer of oil field supplies, W. D. Shaffer president, has taken over the plant of the Lee Wilkinson Tool Co., Santa Fe Springs, Calif.

LOS ANGELES—Boyle Mfg. Co., 5100 Santa Fe avenue, manufacturer of steel tanks, is building a 1-story plant at Alameda, Calif.

SAN FRANCISCO—Pacific Electric Mfg. Co., 5815 Third street, manufacturer of electric switches and electrical equipment, J. S. Thompson president, will take bids in March for its plant at St. Louis, 90 x 182 feet. Robertson & Ewald, Chemical building, St. Louis, are architects.

SAN JOSE, CALIF.—Helwig Iron Works, 69 Almaden avenue, will build a 1-story foundry plant.

HARTFORD, CONN.—Northern Connecticut Power Co. will build a concrete dam and power house on the Connecticut river near the state line of Massachusetts for the development of 50,000 horsepower.

NEW BRITAIN, CONN.—Hart & Cooley Mfg. Co. has been incorporated with $1,000,000 capital to succeed the Hart & Cooley Co. R. W. Blanchard, Chicago, is president.

CHICAGO—Heinze Petzelt Machine Co., M. P. Heinze, 559 West Lake street, manager, is considering erection of a shop for the manufacture of machine tools, dies and jigs.

CHICAGO—Chicago Scale Co., 5701 South Claremont avenue, has been incorporated with $5000 capital to manufacture scales and parts by H. M. Schultz, James E. McShane and Joseph F. Elwood. James E. McShane, 7 South Dearborn street, is correspondent.

CHICAGO—Vacua Electrical Specialty Co. Inc., 1111 Webster avenue, has been incorporated with $3000 capital to manufacture mechanical devices, machines, specialties and rare gas devices by Henry B. Spurlock, 1506 South Dearborn street.

CHICAGO—Cooke Electric Refrigeration Co., 30 North Green street, has been incorporated with $2,500,000 capital to manufacture refrigerators, freezers, motors and machinery by George J. Cooke Jr., Robert E. Cooke and George J. Cooke Sr.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

CHICAGO—Johns-Manville Inc., New York, manufacturer of power-plant specialties, will build an addition to its plant here.

CHICAGO—Excell Phonograph Mfg. Co., 400 West Erie street, has been incorporated with $100,000 capital to manufacture phonographs, equipment and radio appliances by Axel Nordlund, Frida Nordlund. Clarence W. Shaver, 140 North Dearborn street, is attorney.

CHICAGO—Parkinson Heater Corp., 1426 Irving Park boulevard, has been incorporated with $12,000 capital to manufacture water heaters and equipment by John J. Parkinson, F. C. Fuener, and E. R. Smith. Benson, Fitch & Heinemann, 30 North La Salle street, are attorneys.

CHICAGO—Mid-West Incinerator Corp., 320 East North avenue, has been incorporated with $10,000 capital to manufacture furnaces and incinerators and accessories, by Ernest O. Howle, G. R. Howle, and Arthur Robinson. Watrous, Richie & Weiss, 1550 First National Bank building, are correspondents.

ROCK ISLAND, ILL.—Blackhawk Rag & Metal Co., 218 Twenty-fourth street, has been incorporated with $10,000 capital to deal in metals and other waste by Lillian Brady, Bertha Brady and Charles Brady. Huber & Reidy, 210 First Trust building, Rock Island, is correspondent.

STERLING, ILL.—Novelty Iron Works, manufacturer of foundry supplies and specialties, W. J. Burleigh general manager, has started rebuilding its burned plant.

LAFAYETTE, IND.—Monon railroad, E. P. Vernia vice president, 608 South Dearborn street, Chicago, is having plans drawn for a 1-story locomotive repair shop 76 x 500 feet. A. S. Kent, 608 South Dearborn street, Chicago, is chief engineer.

DAVENPORT, IOWA—Automatic Refrigera- Co. Inc. has been incorporated with a capital of $25,000 by W. C. Tegtmeier, 2123 Iowa street.

MARSHALLTOWN, IOWA—Lennox Heater Co. Inc. has been incoporated with a capital of $10,000 by D. W. Norris and R. T. Wasson to manufacture furnaces.

MASON CITY, IOWA—Ulen Radiator Repair Works, 325 South Delaware avenue, will soon start work on a 2-story, 88 x 99-foot garage and shop building to cost $50,000.

INDEPENDENCE, KANS.—United Iron Works has added a working barrel department to its branch shop and contemplates extensions shortly.

PITTSBURG, KANS.—Kansas City Southern railroad has installed an Olson metal testing machine of 200 tons capacity at its shops. M. A. Hall is superintendent of machinery.

NEW ORLEANS—W. Horace Williams Engineering Co. has contract for construction of Frisco railroad shops on 12-acre site recently bought at Pensacola, Fla.

SHREVEPORT, LA.—Bain-Beard Co., machinists and boilermakers, plan erection of building 60 x 80 feet for machine shop at Cedar Grove, a suburb.

BANGOR, ME.—Eagle Air Co. has been incorporated and has bought a site near Belfast, Me., on which to build a plant for the manufacture of aircraft of a special design.

BOSTON—Hunt-Spiller Mfg. Corp., 383 Dorchester avenue, will build a 1-story addition to its iron foundry.

BOSTON—Joseph Pollak Tool & Stamping Co., 81 Freeport street, Dorchester, will build a 3-story addition 50 x 72 feet. Miller & Levi, 46 Cornhill street, are architects.

BOSTON—American Fire Equipment Co. has been incorporated with $100,000 capital to manufacture fire equipment by John J. Scully president, 45 Broad street; Joseph T. Gorham treasurer, Wollaston, Mass.; Hubert W. Tracy clerk, Woburn, Mass.

CAMBRIDGE, MASS.—Joseph T. Ryerson & Son Inc., Chicago, steel warehouses, has let

Iron and Manganese Ores and Minerals

LAKE SUPERIOR ORES

Iron Ore

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	10.00 to 11.00
North African low phosphorus	9.25 to 9.75
Swedish and Norwegian low phosphorus, 68 per cent	10.25 to 10.75
Swedish foundry or basic, 66 to 68 per cent	9.00 to 9.50
Spanish foundry or basic, 50 to 54 per cent	8.75 to 9.25
North African foundry and basic 50 to 54 per cent	8.50 to 9.50

(All foreign ore prices now nominal)

Manganese Ore

Prices do not include duty at rate of 1 tained.
cent per pound of metalic manganese con-
Brazilian, minimum, 47 per cent....36 cents
Indian, minimum 47 per cent....36 to 38 cents
Caucasian, 53 to 55 per cent
Washed .....38 to 40 cents

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, imported duty paid eastern tidewater, per ton	16.75 to 17.50

contract to the Austin Co., Philadelphia, for a 1-story plant at 675 Concord avenue, Cambridge, Mass.

FITCHBURG, MASS.—Deltex Co. has been incorporated with $5000 capital and 170 shares no par value to manufacture machinery and appliances by Raymond W. Jacoby president, Suffield, Conn.; A. H. Jacoby treasurer and clerk, Ashby, Mass.; Blanche S. Jacoby and Edward S. Chapin.

MILBURY, MASS.—Milbury Steel Foundry Co. is building an addition 36 x 110 feet to its foundry to accommodate added equipment.

WESTFIELD, MASS.—New England Wire Co. has been incorporated with $100,000 capital to manufacture wire and wire products by Harry A. Cowles president, E. M. Cowles and Fred S. Cannon.

WORCESTER, MASS.—Parker Wire Goods Co., 149 Washington street, will build a 1-story addition 60 x 87 feet.

DETROIT—Long Mfg. Co., manufacturer of automobile radiators and clutches, is considering plans for an addition to its plant.

DETROIT—Cadillac Stamp Co., W. A. Neville secretary, 832 Porter street, will build a 2-story factory building 60 x 60 feet at 2132 Rippello street.

DETROIT—Bevel Gear Grinding Co., 439 East Fort street, G. L. Bayley president, has been organized recently to perfect a machine for grinding spiral bevel gears for automotive use.

GRAND RAPIDS, MICH.—Leonard Refrigerator Co., Harry C. Leonard manager, has let contract to the Austin Co., 160 North La Salle street, Chicago, for a 3-story plant 128 x 235 feet.

STURGIS, MICH.—Sturgis Register Co., Prairie avenue and West Congress street, is building an addition containing 7000 square feet.

DULUTH—Duluth Lead & Zinc Co. has been incorporated with a capital of $300,000 by D. S. Holmer, 2921 Branch street.

MINNEAPOLIS—Minneapolis Heat Regulator Co., 2747 Fourth avenue south has let contract to Pike & Cook Co. for a 6-story addition 60 x 165 feet.

MINNEAPOLIS—Minneapolis Street Railway Co., 1 South Eleventh street, will build one new crosstown line and extend several others to cost $700,000. T. J. McGill is general manager.

MINNEAPOLIS—Bids will soon be taken on a 2-story garage at Thirteenth street and Hawthorne avenue for W. F. Jordan, to cost $60,000. Magney & Tusler, Inc., 126 South Ninth street, are architects.

MINNEAPOLIS—Twin City Rapid Transit Co., a subsidiary of the Minneapolis and St. Paul street railroad companies, will build a 2-story garage and service station for the 300 taxicabs it recently purchased through a taxicab merger, to cost $100,000. Horace Lowry is president.

NORTHFIELD, MINN.—Northfield Foundry & Machine Co. will build an addition 40 x 105 feet, plans now being prepared.

ST. PAUL—Great Northern railroad, Railroad building, St. Paul, will expend $10,000,000 in 1927 for new cars and locomotives and repairing old cars, also $10,000,000 for general improvements over entire system between St. Paul and Seattle. Ralph Budd is president.

ST. PAUL—Northern Pacific railroad, Railroad building, St. Paul, will make following improvements during 1927; 300 gondola and 200 ballast cars, $1,000,000; 12 locomotives, $1,300,000; finishing line from Orofino to Headquarters and rebuilding 80-mile line to Lewiston, Idaho, $4,000,000; new line in eastern Montana and relocating line in Bitter Root valley in western Montana, $4,000,000. Charles Donnelly is president.

KANSAS CITY, MO.—Weber Engine Works, Twelfth and Winchester streets, will build a 1-story foundry 50 x 100 feet.

KANSAS CITY, MO.—Galion Iron Works & Mfg. Co. has bought site in Woodswether addition for new warehouse to cost $50,000.

KANSAS CITY, MO.—American Sash & Door Co., V. E. Simms secretary and treasurer, Sixteenth and Bellefontaine streets, is having plans made for a 1-story power plant.

KANSAS CITY, MO.—James Stewart & Sons Construction Co., Chicago, was awarded contract for construction of 2,000,000-bushel capacity grain elevator for Wabash railroad to cost $500,000.

KANSAS CITY, MO.—Turner-Warner Screw Co., 1226 Lydia avenue, which recently increased its capital, has installed automatic screw machines and auxiliary equipment and will add further to its screw production equipment.

ST. LOUIS—American Car & Foundry Co. has bought 6½ acres on which it will build additions to its plant when permission has been obtained to close streets crossing it.

ST. LOUIS—Century Electric Co., E. S. Pillsbury president, 1806 Pine street, is having plans drawn for a 2-story addition 240 x 400 feet for foundry and other purposes, at 3739 Market street.

ST. LOUIS—Missouri Pacific railroad, E. A. Hadley, chief engineer, Railway Exchange building, has let contract to T. B. Hubbard Construction Co., Houston, Tex., for an engine repair shop 85 x 112 feet at Harlingen, Tex.

BILLINGS, MONT.—International Harvester Co. contemplates building a warehouse and assembling plant on South Broadway to cost $125,000. R. C' Battey is the local manager.

THREE FORKS, MONT.—Chicago, Milwaukee, St. Paul & Pacific railroad will start work early in March on new line from Three Forks to Salesville to cost $200,000.

OMAHA, NEBR.—Gate City Iron Works will build an addition to its structural steel fabricating plant, and a new foundry and machine shop.

ELIZABETH, N. J.—Kaufman Mfg. & Salvage Co. has been incorporated with 1000 shares no par value to manufacture explosives by Moses Kaufman, Herman Kaufman Alexander Kaufman and Francis A. Gordon, Elizabeth, N. J.

KEARNY, N. J.—Western Electric Co. has closed on structural steel for a plant addition, to the McClintic-Marshall Co.

LONG BRANCH, N. J.—Monmouth Electric Refrigeration Co. has been incorporated with $100,000 capital by Conrad C. De La Motte, Edward R. Slocum, Long Branch; Samuel C. Morris, West Long Branch. John W. Slocum, Long Branch, N. J., is attorney.

NEWARK, N. J.—Brandes Products Corp., 350 Thomas street, R. C. Enderwood works manager, will build extensions to increase production capacity.

NEWARK, N. J.—Thien Equipment Co. has been incorporated with 1000 shares no par value to manufacture tools by Harry C. Hand, Samuel C. Wood and William M. Stevens, New York. Filed by United States Corporation Co., New York.

NEWARK, N. J.—Lidgerwood Mfg. Co., 326 Frelinghuysen avenue, has bought a site at Elizabeth, N. J., on which it will build a plant to which its production will be removed. Machinery plant will be 120 x 600 feet, foundry 120 x 400 feet, with pattern shop, power house office building and warehouse.

NORTH BERGEN, N. J.—American Fence Co., 223 West Fifty-seventh street, New York, has let contract to Bonano Bros., 988 Bergenline avenue, Union City, N. J., for a 1-story plant 60 x 200 feet in the North New Jersey Industrial Terminal.

PATERSON, N. J.—Standard Oil Burner Co. has been incorporated with $120,000 capital by Edward J. Wholfarth, Herrel G. Thomas, Clarence Seeley and William E. Deboski. Morris F. Levin, Paterson, is attorney.

ROSELLE, N. J.—Roselle Foundry Co., Oak street, will build a 1-story addition 80 x 100 feet adjoining its plant. Joseph Anderson, 251 North Broad street, Elizabeth, N. J., is architect.

BROOKLYN, N. Y.—City Iron Works, Inc., 1561 Sixtieth street, has had plans made by Jacob Lubroth, 44 Court street, for a 1-story addition to be built at once.

BROOKLYN, N. Y.—Work will be started shortly by the Bush Terminal Co. on a boiler house, for which structural steel has just been placed with Shoemaker Bridge Co.

BROOKLYN, N. Y.—Advance Oil Burners Co. has been incorporated with $15,000 capital by L. Applebaum, H. Kirshner and S. Spiegelman. M. C. Miller 260 Snediker avenue, is attorney.

BROOKLYN, N. Y.—T. & S. Casting Co. has been incorporated with $5000 capital to manufacture brass products by W. W. Tennant, S. S. Smith and J. Loccisano. H. Van Alst, Long Island City, N. Y., is attorney.

BROOKLYN, N. Y.—Peerless Fireproof Door Co. has been incorporated with 300 shares no par value to manufacture fireproof doors, sash and blinds by M. Jupiter, H. Hahn and F. Rosenberg. Hartman, Sheridan & Tekulsky, 285 Madison avenue, New York are attorneys.

BUFFALO—Acme Steel & Malleable Iron Works Inc., D. J. Carson president, 245 Military road, has let contract to the Austin Co., Cleveland, for a 1-story plant 143 x 200 feet.

DUNKIRK, N. Y.—Warren Axe & Tool Co., H. P. Stone president, Warren, Pa., is considering plans for rebuilding its burned plant.

DUNKIRK, N. Y.—United States Radiator Corp. is considering plans to replace its present frame plant by permanent structures of steel and concrete.

MONTAUK, N. Y.—Montauk Sep-Tank Systems, has been incorporated with $15,000 capital by A. Pearson, C. Appleyard and W. H. Halsey. R. A. Smith, Easthampton, N. Y., is attorney.

NEW YORK—Traffic Regulating Appliance Corp. has been incorporated with $10,000 capital by W. Kramer, and M. G. Laub. B. Ellison, 67 Wall street, is attorney.

NEW YORK—F. Roth Sheet Metal Corp. has been incorporated with $3000 capital by A. A. Roth, F. Roth and R. Roth. S. Perlo, Corona, N. Y., is attorney.

NEW YORK—Altro Smelting & Refining Co. has been incorporated with $50,000 capital by A. Turman, L. Turman and I. J. Rifkin. A. Teitler, 261 Broadway, is attorney.

NEW YORK—Merit Automotive Products Co. has been incorporated with $30,000 capital by M. Miller, E. Villar and A. Oserio. Villar & Oserio, 18 Harrison street, are attorneys.

NEW YORK—Granger Patents has been incorporated with 100 shares no par value to manufacture machinery by P. Boston, T. K. Russell and G. H. Brooke. J. H. San, 12 East Forty-first street, is attorney.

NEW YORK—Albert Emanuel Co. has been incorporated with 500 shares no par value to construct street railways by R. E. Triggs, J. S. Shedden, and M. Taylor. Seibert & Riggs, 2 Rector street, are attorneys.

NEW YORK—Antique Metal Polishing & Spinning Corp. has been incorporated with

$3000 capital to manufacture metal products by N. Sachs, M. Madnick and N. Rosen. S. Abramson, 63 Park Row, is attorney.

NEW YORK—Kew Mfg. Corp. has been incorporated with $20,000 capital and 150 shares no par value to manufacture machinery and appliances by J. C. Fallen and G. T. Donohoe. J. A. Byrne, 14 Wall street, is attorney.

NEW YORK—Leader Strap Corp. has been incorporated with $5000 capital to manufacture copper and iron products by M. Rachlin and F. S. Payne. W. G. Bushell, 261 Broadway, is attorney.

NEW YORK—Anvil Products has been incorporated with $10,000 capital and 100 shares no par value to manufacture steel products by S. Arons, I. Cherno and M. Stark. R. J. Joseph, 1440 Broadway, is attorney.

NEW YORK—American Bronze Co. has been incorporated with $30,000 capital to manufacture metal products by F. J. Mahoney, C. H. Antonious and A. C. Wichman. D. Bailey, 100 Broadway, is attorney.

NEW YORK—W. V. N. Powelson, has been incorporated with 1000 shares no par value to manufacture contractors' machinery by F. Workum, J. B. Field and M. Gerome. Simpson, Thatcher & Bartlett, 120 Broadway, are attorneys.

NEW YORK—North American Radio Corp. has been incorporated with $125,000 capital to manufacture radio, automotive and airplane supplies by S. Goldman, B. Meyer and A. Meyer. S. D. Cohen, 8 West Fortieth street, is attorney.

NIAGARA FALLS, N. Y.—Carborundum Co. will build a 4-story addition 31 x 98 feet.

NIAGARA FALLS, N. Y.—Niagara Electro Chemical Co., Buffalo avenue, has let contract to Wright & Kemmers, Main street and Pine avenue, for a 1-story addition 167 x 350 feet.

ROCHESTER, N. Y.—Robeson-Rochester Corp., 176 Anderson avenue, manufacturer of cutlery, S. Firestone, 59 South avenue, engineer, is planning an addition to increase capacity.

ROCHESTER, N. Y.—Rochester Combustion Co. has been incorporated with $10,000 capital to manufacture heating apparatus by B. Levin, and L. Bunis. A. Schulman, Rochester, is attorney.

ROME, N. Y.—Rome Wire Co. has let contract to H. R. Beebe Inc., Utica, N. Y., for a 1-story plant 150 x 172 feet.

HIGH POINT, N. C.—Owen Welding Co. has been incorporated with $50,000 capital by John A. Owen, and John E. Pendergrass.

BARBERTON, O.—Barberton Foundry Co. has delayed building its proposed addition until plans can be made for a more extensive construction. First plan for an addition to existing structures has been discarded and a complete steel foundry plant will be built.

CINCINNATI—Aluminum Industries Inc., has been incorporated with $25,000 capital by J. Andrae, Frank Karle, J. Beck, M. E. Anderson and A. H. Mayham.

CLEVELAND—Forging Service Co. has been incorporated with 100 shares no par value by Nettie C. French, Don. C. Pierce, Joan B. Fergus, Noyes C. French and W. J. Hawley.

DAYTON, O.—Beater Machine Co. has been incorporated with $30,000 capital by C. P. Folsom, W. H. Burgett, J. B. Coolidge, J. Wonderly and J. R. French.

DAYTON, O.—National Foundry & Furnace Repair Co., Bolander avenue, has let contract to Industrial Building Co. for a 1-story foundry addition.

TULSA, OKLA.—Frick-Reid Supply Co. has let contract to G. D. Morrow & Son for 2-story brick office building, 50 x 100 feet, at Trenton street and Frisco tracks.

TULSA, OKLA.—Iverson Tool Co. has increased capital from $50,000 to $100,000 to provide for new machine shop expansion. P. M. Iverson, Tuloma building, is president.

TULSA, OKLA.—Gaso Pump & Burner Mfg. Co. has contract from Prairie Pipe Line Co. four fourteen 25-horsepower horizontal duplex gear-driven power pumps for pipeline installation in Panhandle oil field.

TULSA, OKLA.—Tulsa Valve Co., capital $50,000, incorporated by J. R. Thompson, C. E. Campbell, 1230 South Quaker street, and L. S. Mankin to manufacture a pumping valve for oil wells.

GLEN LYNN, PA.—Susquehanna Collieries Co., Miners Bank building Wilkes-Barre, Pa., is having plans drawn for a car repair and blacksmith shop 32 x 90 and 31 x 32 feet, of steel construction.

MCKEESPORT, PA.—Columbiana Foundry Co., iron castings manufacturer, has bought part of a plant in Sterling township formerly occupied by Firth-Sterling Steel Co., and will remodel and equip for its enlarged production.

PHILADELPHIA—West Philadelphia Scrap Iron & Metal Co. has been incorporated with $25,000 capital by Sydney Myers, 6100 Washington avenue.

PHILADELPHIA—Work will be started shortly on a $15,000 factory building in Worth street, north of Margaret, by Robert Farlow & Son, 415 South Fifth street.

PHILADELPHIA—General contract for a $21,000 machine shop for the University of Pennsylvania, Thirty-seventh street south of Walnut, has been awarded to William H. Graveli, Fifteenth and Locust streets.

PITTSBURGH—Levinson Steel Co. has been incorporated with $5000 capital by Jacob Levinson, 910 Jancey street.

MEMPHIS, TENN.—Tri-State Iron Works has been incorporated with $125,000 capital by E. T. Lesley, J. A. Rudisill and J. G. Nohsey.

NASHVILLE, TENN.—Allen Mfg. Co., manufacturer of stoves, W. J. Allen president, has increased its capital from $75,000 to $500,000 and will add largely to its plant, including a foundry, enameling department and warehouse.

CHILDRESS, TEX.—Smith Plow Mfg. Co., capital $10,000, incorporated by John T. Smith, Joe H. Ward and Helen Ward to manufacture parts for metal plows.

DALLAS, TEX.—Refinery Supply Co., capital $10,000, chartered by William Schleuter, president, Roscoe Copman and Lillian Schleuter.

DALLAS, TEX.—Wyatt Metal & Boiler Works has increased capital from $200,000 to $500,000 to provide for plant extensions.

DALLAS, TEX.—Hughes-O'Rourke Construction Co. has contract for construction of new Baker hotel at Amarillo, Tex., to be of stone, concrete and steel construction.

DALLAS, TEX.—Latex Gas Co., subsidiary Magnolia Petroleum Co., announces construction of 200-mile gas pipeline of 14, 16 and 18-inch pipe from Orange, Tex., to Dallas. Fred N. Lege is president of the company.

FORT WORTH, TEX.—Fort Worth Well Machinery & Supply Co. has secured sites in Brownwood, Cisco and Albany, Tex., for branch warehouses to handle oil and water well supplies.

GALVESTON, TEX.—J. W. Zempter was awarded contract for construction of two large steel hangars for government aviation field at bid of $20,000.

HOUSTON, TEX.—Alamo Steel & Supply Co. has taken out building permit for warehouse on Spring street to cost $6500.

HOUSTON, TEX.—Southwestern Construction Co. has received contract from Schumacher Properties Co. for 8-story concrete and steel warehouse building, 130 x 154 feet.

HOUSTON, TEX.—Hencke & Pillot have obtained building permit for new blacksmith shop at Washington and Railway streets, costing $5000.

HOUSTON, TEX.—Trinity Portland Cement Co. is completing a large machine shop, 40 x 227 feet, of concrete and steel construction, as part of a $2,000,000 building program. O. V. Bartholomew is plant superintendent.

HOUSTON, TEX.—J. C. Garner & Sons, manufacturers of ginning machinery, have acquired a site 325 x 325 feet at Leona and Carr streets from Sampson Machinery & Supply Co. to erect a plant. J. C. Garber, 2420 Prospect street, is president.

HOUSTON, TEX.—William Moore Co., general contractor, Second National Bank building, has received a 75-ton floating derrick from Pennsylvania Car Co. to be used in salvage work on Houston ship channel. Company is planning construction of new wharves for unloading material.

SAN ANTONIO, TEX.—General Welding Co., 105 Vallita street, is having plans made for a welding plant at 516 Water street, one-story, 50 x 75 feet. Bids in January.

WICHITA FALLS, TEX.—Riverside Boiler & Welding Co., capital $15,000, chartered by C. F. Schram, 1412 Fifteenth street, J. A. Maley and C. B. Felder, to build and operate plant for boiler and welding work.

PULASKI, VA.—Pulaski Foundry & Mfg. Corp., J. J. Seaver, president, 2422 Euclid avenue, Cleveland, will build blacksmith and pattern shop, added space thus gained being used to accommodate tools and equipment of Dora foundry, bought from Virginia Iron, Coal & Coke Co.

Business in Canada

NEW WESTMINSTER, B. C.—Canadian Scottish Paper Co. Ltd., which recently completed its plant here, now proposed to start work soon on a large addition to its present mills.

TRAIL, B. C.—Consolidated Mining & Smelting Co. proposes increasing capacity of its custom lead-zinc mill from 800 to 600 tons daily; and an increase in the zinc reduction capacity of 80 tons, which would bring the output up to 355 tons per day. To operate these extensions the capacity of the West Kootenay power plant will be increased to 60,000 horsepower. The above additions are to be carried out this year.

VANCOUVER, B. C.—Simmons, Ltd., 2034 Eleventh avenue, manufacturer of beds, mattresses, etc., is having plans prepared by Townley & Matheson, 325 Homer Street, for $60,000 factory addition.

VANCOUVER, B. C.—It is reported that two representatives of an English financial house have left London, Eng., for Vancouver, to investigate the possibilities of establishing an iron and steel industry in this province. The syndicate is represetned here by Dai Thomas.

BATHURST, N. B.—Bathurst Co. Ltd. plans a 250-ton paper mill here in connection with its extension program.

SAND POINT, N. B.—Dominion department of public works, Parliament buildings, Ottawa,

Canada, will install an electric derrick here to have a lifting capacity of 35 tons, with 80-foot radius.

BRIDGEPORT, N. S.—Cape Breton Electric Co., Sydney, N. S., will install a new transformer here. P. M. Wentworth is general manager.

BLENHEIM, ONT.—The ratepayers carried a by-law authorizing the expenditure of $85,000 on waterworks plant here. P. S. Shillington is clerk.

COCHRANE, ONT.—It is understood the Abitibi Power & Paper Co., Canada Cement building, Montreal, Que., will start work in the spring on a newsprint mill with daily capacity of 200 tons.

HAMILTON, ONT.—Dominion Power & Transmission Co. will build a substation in the west end of the city. The building will be a combination railway and power substation. Electrical equipment to cost $100,000 will be installed.

HAMILTON, ONT.—Construction work is under way on $10,000 addition to the plant of the Canadian Drawn Steel Co. Ltd., here. The Frid Construction Co., general contractor, has awarded some subtrades in this connection.

HAMILTON, ONT.—Gartshore-Thomson Pipe & Foundry Co. Ltd., has completed arranagements to manufacture cast iron pipe by the centrifugal process in sand molds. The company is now having plans prepared for a foundry building to accommodate the new process, while other equipment will also be installed.

KINGSVILLE, ONT.—The ratepayers carried a by-law authorizing the expenditure of $28,000 for improvements to waterworks plant here. William G. Long is clerk.

LONDON, ONT.—Kelvinator Co. of Canada Ltd., is having plans prepared and will start work next spring on addition to its factory on Dundas street East.

NIAGARA FALLS, ONT.—Plans are being prepared by E. Carlson, engineer, 374 Main street, Tonawanda, N. Y., for $200,000 addition to the plant of the Kardex-Rand Co., Bender Hill, Niagara Falls, Ont.

PARKHILL, ONT.—The ratepayers carried a by-law authorizing the construction of a pump house in connection with waterworks plant to cost $5000.

PETERBOROUGH, ONT.—Brinton Carpet Co. Ltd., will start work at once on a $30,000 addition to its factory on Briarwood avenue.

PORT ARTHUR, ONT.—The ratepayers of this city voted on an agreement between the city and the Thunder Bay Paper Co. whereby the latter will spend several million dollars in establishing a paper industry to have a capacity of 400 tons per day. Construction has been started.

ST. THOMAS, ONT.—New machinery and tools are being installed in the Pere Marquette shops here including a wheel press and 32-inch shaper.

TIMMINS, ONT.—McArthur Gold Mines has been incorporated to mine smelt and refine ores, metals and minerals, with $500,000 capital stock by Burnett S. Lamble, Augustine McLLhargey, James P. Bartleman and others.

TORONTO, ONT.—Massey-Harris Co., 015 King street West, is receiving bids in connection with addition to its plant to cost $15,000.

TORONTO, ONT.—Frankel Bros., Eastern avenue, iron and steel scrap dealers, are building $50,000 warehouse on George street.

TORONTO, ONT.—Myers Lumber Co., Spadina road and Eglington avenue, Forest Hill, is having plans prepared for factory and mill here.

TORONTO, ONT.—Davidge Construction Co. has been incorporated with a capital of $30,000 and 10,000 shares of no par value by William J. Davidge; Margaret M. Tyrell; Charles Walfish, and others.

TORONTO, ONT.—Myrtay Mines Ltd., has been incorporated to mine, smelt and refine, ores, metals, and minerals, with $500,000 capital stock, by Edward O. Taylor; James A. Boles; Clarence O. Gibson and others.

TORONTO, ONT.—Thor Mines Ltd., has been incorporated to mine, smelt and refine ores, metals and minerals, with $300,000 capital stock by Annie L. Cronin; William O. Gibson; Gerald C. Lindsell, and others.

TORONTO, ONT.—Canadian Wirebound Boxes, Ltd., operating a factory at 1000 Gerrard street East, contemplate building a large factory at West Toronto to have 120,000 feet floor space.

TORONTO, ONT.—Andargo Mine, Ltd., has been incorporated to mine, smelt, and refine ores, metals, and minerals, with $2,000,000 capital stock, by William K. Murphy; Earnest L. Claridge; Duncan B. Donald, and others.

TORONTO, ONT.—Gibb Roberston Mfg. Co. Ltd. has been incorporated to manufacture and deal in asbestos pipes, boiler coverings iron and steel products etc, with $50,000 capital stock, by John Kennedy; Thomas Clark; Douglas S. Little and others.

TORONTO, ONT.—Canadian Pacific railway, New Union Station, is having plans prepared for round house, car facilities building, subsidiary structures, etc., on Fleet street here to cost $3,000,000. Construction work will be started in the spring.

TORONTO, ONT.—Bathuest Mines, Ltd., has been incorporated to mine, smelt and refine ores, metals and minerals, with a capital of 2,000,000 shares of no par value by James Y. Murdock; William S. Walton; Florence M. Thompson, and others.

TORONTO, ONT.—Ewart, Armer & Byam, Ltd., architects, Excelsior Life building, are preparing plans for a factory on Eastern avenue, here, for the Link-Belt Co. Ltd., 265 Wellington street West. Tenders in connection with construction work will be called next spring.

WHEATLEY, ONT.—The ratepayers defeated by-law proposing $50,000 addition to waterworks plant.

WHEATLEY, ONT.—Ratepayers will vote on a bylaw to authorize the expenditure of $84,000 on new waterworks plant. R. N. Epplett is clerk.

MONTREAL, QUE.—Nesbitt-Thomson & Co. Ltd., 145 St. James street, will build a paper mill on the Quebec side of the Ottawa river to cost $4,000,000. Engineer not yet appointed.

New Trade Publications

AIR COMPRESSORS—General Electric Co., Schenectady, N. Y., has issued a bulletin covering its centrifugal air compressors, small, multi-stage type, illustrated in much detail and containing complete engineering data.

DIAMOND DRILLS—Two bulletins recently issued by the Sullivan Machinery Co., Chicago, illustrate and describe types of drills for varying uses. Details are shown in the ilustrations and full data are given.

CONVEYORS—Alvey Mfg. Co., St. Louis, has issued a circular calling attention to advantages of its conveyors for moving material, as compared with man-power. Typical installations for various uses are shown in illustrations.

SPECIAL STEEL—Jones & Laughlin Steel Corp., Pittsburgh, has issued a bulletin calling further attention to its new special steel adapted for case hardening, free cutting and easily forged. Typical products are shown and photo-micrographs reproduced.

DUST COLLECTORS—Northern Blower Co., Cleveland, has issued a circular covering the subject of dust in industrial plants, its collection as a matter of removal and as salvage, with suggestions as to equipment to give best results.

SPECIFICATIONS—Niagara Falls Smelting & Refining Corp., Buffalo, has published a reprint of the specifications and formulas for nonferrous metals advocated by the Society of Automotive Engineers. Twenty-eight alloys are listed.

VALVES—W. H. Nicholson & Co., Wilkes-Barre, Pa., have prepared a bulletin on their three and four-way valves for pressures up to 500 pounds, indicating their use in a large number of ways in metal-working equipment. Much detail is shown and data presented.

HARDWARE—David H. Smith & Sons, Brooklyn, N. Y., has issued a catalog of steel, machinery and supplies carried in its warehouse. The book is thumb-indexed and covers a wide assortment to which reference can be made quickly.

TURBO GENERATORS—A circular by the American Brown Boveri Electric Corp., New York, deals with the operation and construction of normal steam turbines and generators combined in one unit for central station service and also some of the special purposes to which the Brown Boveri turbines have been adapted. It is well illustrated and shows much detail of construction.

STEEL CASTINGS—Castings made to wear in hard service, avoiding breakdowns and costly delays, are featured in a bulletin by the Sivyer Steel Casting Co., Milwaukee. It is illustrated, showing some of the castings made for contractors' equipment and other heavy duty.

ROLLER BEARINGS—Timken Roller Bearing Co., Canton, O., has published a reprint of a paper on, "Recent Developments in the Application of Tapered Roller Bearings in Machine Tools," by S. M. Weckstein. This paper was presented at the September meeting of the American Society of Mechanical Engineers held at New Haven, Conn.

LIGHT ALLOYS—British Aluminum Co. Ltd., London, Eng., has published a 31-page booklet showing the application of light aluminum alloys in automobile manufacture. According to the booklet, considerable saving in dead weight may be made by substituting light alloy castings and sheets in the construction of automobiles.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¾ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Net prices per foot f.o.b. Pittsburgh Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-in thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot	.20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot	.20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection	No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

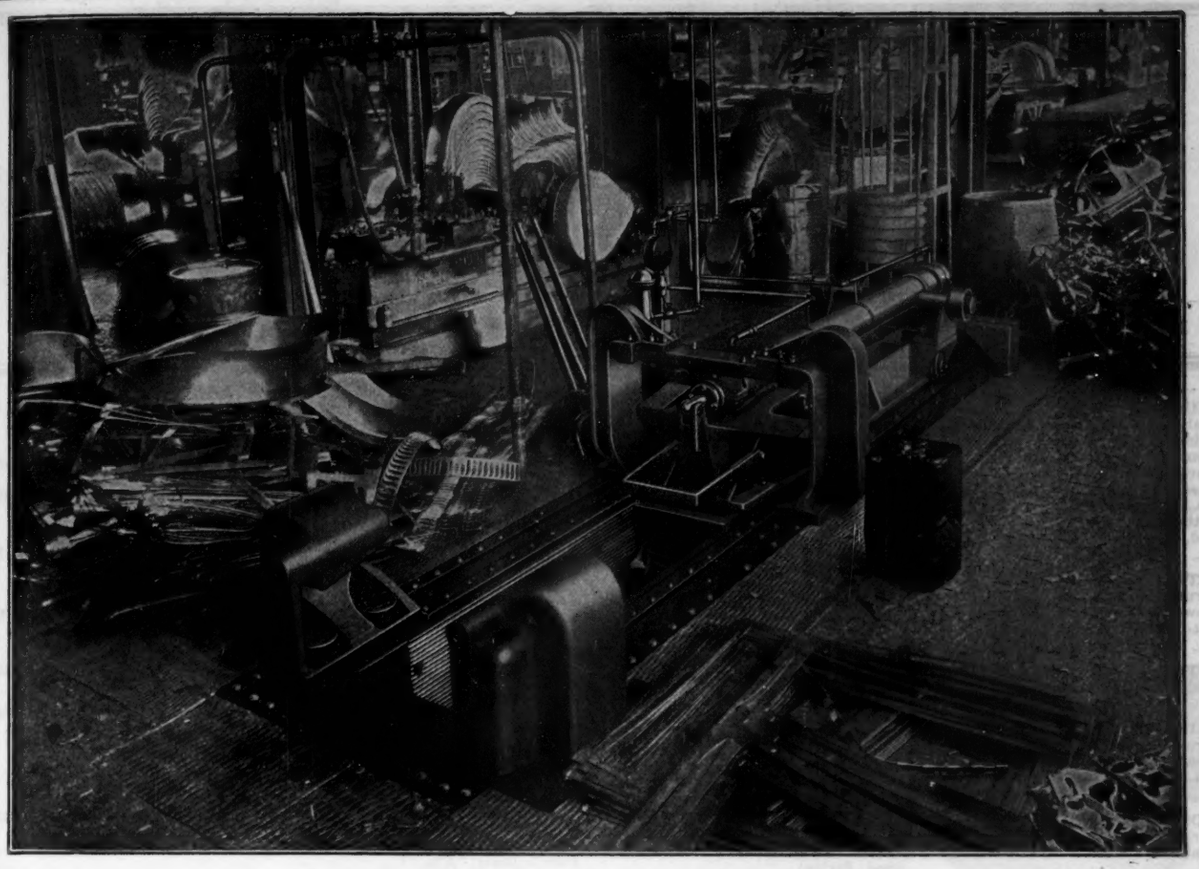
With not more than four straight cuts. (Including straight taper plates)

Additional extra	.10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra	.20c



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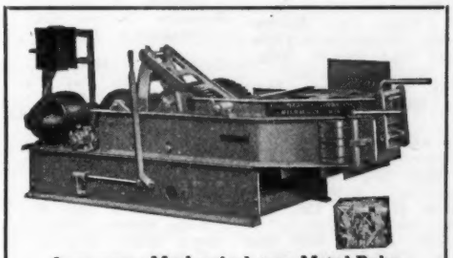

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